



THE MACROLEPIDOPTERA OF THE WORLD

A SYSTEMATIC DESCRIPTION OF THE
HITHERTO KNOWN MACROLEPIDOPTERA

IN COLLABORATION WITH WELL-KNOWN SPECIALISTS

EDITED BY

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THE AMERICAN GEOMETRIDAE



TEXT



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Introduction.

Among all the lepidopteral groups in the whole world the *Geometridae* may boast of the most universal and relatively most uniform distribution both in zoographical and topographical respects. We do not know any form of landscape which does not possess its specially adapted Geometrid forms and, excepting the polar regions where insects exist no more, there is hardly any country or island where we do not meet with some *Geometridae*. Even in those islands where cold-blooded animals are almost entirely lacking, such as Iceland, Fuegia, Tasmania etc., we still find a relative abundance in *Geometridae*, and, as we stated in the introduction to Vol. XVI, there are still whole colonies of *Geometridae* in those parts of the deserts where hardly any animals occur.

Also in the vertical direction the *Geometridae* accompany us throughout the altitudes that can be reached by man and where insects can exist. Even above the tree-limit, in the close vicinity of the glaciers and snow-fields, we meet with peculiarly adapted Geometrid species or even genera, which are entirely dependent on these altitudes. On the one hand, there are genera or even species inhabiting a whole hemisphere in a scarcely varying form, and on the other hand there are large genera, the occurrence of which is confined to a single range of mountains. It is worth mentioning that alpine districts generally abound more in Geometrid species than the plains, which is probably due to the fact that most of the *Geometridae* prefer the forest which frequently covers the mountains. Especially the more imposing Geometrid species mostly emerge from tree-larvae, and that may be the reason why the larvae of *Geometridae* are of a relatively rarer occurrence in tropical districts than is the case in the temperate latitudes, where the access to the forests is not impeded.

The total number of Geometrid species known at the time when the volume of the palaeartic *Geometridae* was being compiled (1914) had been estimated at about 10 000 (REBEL) divided between the various faunae as follows: about 1300 occurring both in the palaeartic and Ethiopian regions, about twice as many in the Indo-Australian region, and about four times as many in America. Meanwhile, however, the number of forms known has considerably increased, and just recently it has been growing enormously. Moreover, vast parts of our earth, particularly the alpine districts in Asia and America, have hardly been explored, so that our knowledge of this group is yet to be greatly augmented. In a very short time a great number of South-American towns will be fitted with electric light, which will simplify collecting.

On the whole, the American *Geometridae* exhibit the very same consistency as those of the whole earth. All the Geometrid larvae, with hardly any exception, are provided with 10 feet, which peculiarity is solely confined to the larvae of this group. It is only the larva of a single South-American species which, when at rest, shows an attitude similar to that of the Geometrid larvae, clinging to the support with the claspers on the one hand, with the pectoral legs on the other hand, and freely stretching the body between the two supports like a dry twig; this, however, is effected by retracting the abdominal legs, the number of which is normal, until they disappear altogether, so that the resemblance to the attitude of repose is only apparent.

The great consistency of the Geometrid larvae is also exhibited by the pupae and even imagines. Nearly all of the pupae are slender, without any special distinction, resting almost unprotected or in a very scanty web which often consists of but few threads; or they lie in a kind of cradle, or simply underneath the mossy cover of the forest. The American Geometrid larvae have no real gregarious habits, nor do they gather in troupes for the sake of pupation; if, as in North America, crowds of Geometrid larvae assemble in some district, this is mostly a consequence of cultivation which, for instance in the fruit-cultures of the United States, produces the occasional excessive propagation (e. g. of *Alsophila pometaria*) in the same way as the rapid growth of *Bupalus piniarius* is promoted by the fir-pine woods in Europe, or as the great devastations,

caused by the magpie-moths and the *Operophtera*, are promoted by the extensive plantations of *Ribes grossularia* and of fruit-trees.

The larvae are easily recognizable by the formation of their legs, the pupae by their slim shape, their smooth upper surface and their scanty web, and the imagines as a rule by a lateral cavity near the base of the abdomen which is easily noticed, as the body of many Geometrid species is scantily covered with hair. The manner of holding their wings is, on the whole, also very consistent, since a great part of *Geometridae* usually keep their wings flatly spread, when they settle for a longer rest. Wherever there are differences in this habit, the cause is obviously the imitation of some object of their surroundings, a withered leaf, a fruit-pod, or the like.

It is also evident in most of the American *Geometridae* that they lack a real interior protection by poisonous juices. This is certainly the case in most of the species living on unpoisonous foliage. During their larval stage they are chiefly protected by the sheer impossibility of being recognized, and it is obvious that the excellent disguise as it is exhibited by a larva provided with thorns similar to those of its food-plant (e. g. the Ethiopian larva of *Coenina dentaria* Swb. living on *Acacia nilotica*) is hardly detected even by the eyes of animals. On ivy-clad one walls may readily observe the larvae of *Ouraapteryx*, which in the daytime stick quite stiffly up into the air like the stalk of a leaf, remaining unnoticed even by insectivorous birds, as long as they do not move. On being discovered, however, they are picked off at once, and it has been ascertained by frequent observations that the larvae of *Geometridae* represent the greatest part of the food with which the singing-birds feed their young.

The imagines of the *Geometridae*, like the larvae, try to escape the danger of being discovered by hiding. Owing to the resting imago's habit of keeping its wings flatly appressed to the background, the shape of the insect is difficult to discern, since it is excellently concealed by the marking of dark undulating lines on the bark-grey ground-colour of the wings. This is particularly the case with plumper-bodied Geometrid species, the big bodies of which attract the insectivorous animals more than the dry, intensely dusted miniature bodies of the more slender *Geometridae*, in which the still relatively large, inedible wings form the greatest part of the morsel.

The protective colouring of the *Geometridae* is quite general in the species which fly at night and rest in the daytime. Among these we also meet with most of the green lepidopteral species, since many *Hemitheinae* spend the daytime in herbs or in the foliage of bushes; besides these a very great number imitate withered or dry, shrivelled leaves, or white species appress themselves so closely to the underside of leaves that their glossy upper surface reflects the green colour of their surroundings. All these species are so well protected that they are only noticed when beaten off from the bushes or forced to fly away, when one kicks against young trees on which they have settled. The way they make use of their protective colouring is often very cunning. Thus, for instance, the leaves of some herbs in Brazil have been modified by coleopteral larvae (presumably *Cassidae*) to such a degree that the centre of the leaf, deprived of its epidermis, forms a hyaline spot, in which single chlorophyllaceous islets are still to be seen, and which strongly contrasts with the broad green edge of the leaf. On the same vegetable species, exhibiting such half-skeletonized leaves, a Geometrid species, *Trygodes musivaria*, settles on the leaves in such a way that the lepidopteron represents the skeletonized patch, whilst the edge of the leaf representing the apparently undamaged part projects on all sides in the same width. The insect mostly places so much confidence in this disguise that it only flies away on being touched.

The fact that other *Geometridae* have adapted themselves to the bare soil, or to places in wood stripped of the bark, or to twigs or leaves soiled by birds' droppings, or to the rocky subsoil, to walls or planks, has been proved by many examples in all the faunistic regions of the earth, and especially in America. We can always ascertain that also the attitude of the lepidoptera exactly corresponds to the colour of the surroundings to which it has adapted itself. Many *Microgonia* exhibit the well-known oblique stripe extending from the apex across the centre of the inner margin of both the forewings to the other apex, corresponding to the midrib of the mimicked leaf. The imago is very rarely discovered in this resting position: it then sits on a dry tendril or a loose petiole in such a way that the apex of the one wing usually also exhibiting a small stalk-like tip lies flat against a stalk where the leaf might have grown, whilst the apex of the other forewing extends into the air like the apex of the leaf.

All these qualities, especially the extremely minute adaptation, the development of which must surely have taken ages, and besides the universal distribution extending even across the geologically oldest countries — the *Geometridae* predominate in such countries as New Zealand and Australia —, their habits being mostly nocturnal, averse to the sun, the inflexibility and a certain monotony of their exterior. — all these facts seem to prove that the *Geometridae* are a very old lepidopteral tribe. Moreover, the vast range of some species (e. g. *Calocalpe undulata* L.) often extending, as we mentioned above, across all the continents of a hemisphere, the frequent reoccurrence of particularly grotesque forms in distantly remote countries, as for instance the vermicularly prolonged body with reduced hindwings in New Zealand (*Tatosoma agrionata*

Wlk.) and then again in Chile (*Pachrophylla linearia* Blanch.), and many other facts likewise are in favour of the assumption that the *Geometridae* belong to a palaeontological branch of the lepidopteral tribe. But as is frequently the case in the animal kingdom, single offshoots of this tribe seem to have adapted themselves to the modern times and to have gone on developing themselves into sun-loving, variegated diurnal lepidoptera which often exhibit a magnificent metallic exterior. As the *Dysphania* and *Milionia* in the Indian fauna and the *Aletis* in Africa, so the *Nelo*, *Siosta*, *Sangalopsis*, and *Devarodes* in America preferably fly about in the brightest sunshine in open spaces, taking up water from puddles in the roads, and moving about most conspicuously, evidently unmolested by insectivorous animals. It seems that some interior protection has developed itself also in the day-flying, glaringly yellow *Cyllopoda* in the same way as in the palaeartic *Abraaxas*, for, as in the European *Abraaxas grossulariata*, the larva of *Cyllopoda*, contrary to nearly all the Geometrid larvae, exhibits variegated spots behind the head and at the anal end, and has also diurnal habits; it has ceased to show resemblance to a twig, but has a stout, cylindrically shaped body. This diurnal life in the sun is a preliminary condition for the development of mimetic assimilation, and although cases of minute mimicry only occur very exceptionally in the *Geometridae*, yet resemblances to notoriously protected butterflies are to be noticed in certain groups. Thus, for instance, there are the most conspicuous *Siosta bifasciata* Latr. in the west of Tropical America, and at the very same place we find the likewise black *Actinote* (larva on Solaneae) exhibiting a scarlet mark at the same place on the wing and so offering the same exterior as the Geometrid form flying among them; even colours entirely uncommon in *Geometridae*, as the black vestiture of the Peruvian *Actinote anaxo* Hpff., recurs in the Peruvian Geometrid *Siosta*.

Other *Geometridae* seem to have only lately commenced with a certain adaptation to their surroundings, and the resemblance has not yet passed beyond the stage of a rough beginning. Thus we find among the *Erycinidae* of Tropical South America the widely distributed genus *Ancyluris* exhibiting a peculiar distortion of the hindwings, the anal parts of which are extended to broad, lobate tails with a reddish-yellow, red, or white marking on a deep black ground (cf. Vol. V, pl. 129, 130). At the same place as these *Ancyluris* fly the Geometrids of the genus *Erateina* exhibiting the same contortion of the hindwings which, as in the *Ancyluris*, have the shape of a broad stripe ending in a lobate tip and are likewise decorated with orange, yellow, or red on a dark ground. This shape, however, is produced in an entirely different, somewhat violent manner; i. e. so much of the inner-marginal portion of the hindwing being turned under in the ♂♂ of these *Geometridae*, that the part of the wing which is visible from above shows exactly the shape of the hindwing of *Ancyluris*. It is a curious fact that this reversed inner-marginal lobe does not exhibit the marking of the upperside to which this surface really belongs, but forms an exact continuation of the most complicated marking of the hindwing beneath, so that the scheme of colouring and marking appears to be almost turned over.

If we examine the pouch produced thereby at the inner margin of the hindwing, which we find particularly well developed in the ♂♂ of *Erateina undulata* Saund., it proves to be densely filled with an accumulation of modified scales which have not only lost their colouring altogether, but also have undergone a change in shape, as it frequently reoccurs in the so-called scent-organs of certain lepidoptera. All the terminal teeth of the scales have vanished and been transformed to oblong-oval scales or awl-shaped formations which are sometimes joined together like copulating Gregarinae.

In general, distinct scent-organs rarely occur in the other *Geometridae*. The forewings of some American *Larentiinae* sometimes show comb-shaped strigiform pads — for instance in the Peruvian *Obila gibbosaria* —, or accumulations of scales projecting from the costal margin, as in *Obila floccosaria* Walk. On examining the curls of hair under the microscope they prove to be composed of wing-scales having grown into long hairs that have become long, somewhat undulated threads in *O. gibbosaria*, whilst those of *O. floccosaria* show a widening at the end, where we still notice traces of the terminal teeth of the scales. In most of the groups, however, the scaling does not differ considerably from the usual shape of the other lepidopteral families.

The size of the wing-span of the American *Geometridae* is certainly not inferior to the extreme sizes of those of other faunae, though it does not exceed them. The largest American *Geometridae* are probably the females of certain *Microgonia*, such as *M. guenéei* Warr. with an expanse of 8—9 em, similar to that of the Indo-Australian *Medasina*, *Xandrames*, *Elphos*, or *Erebomorpha*. Thus the American *Geometridae* do not show a superiority over all the other *Geometridae* as the South-American Noctuid *Thysania agrippina* does over all the other Noctuids. Moreover, there occur very small *Sterrhinae* in America, but they only form a parallel to the diminutive size of numerous palaeartic forms, such as the European *Ptychopoda nexata* Hbn., the Asiatic *Ptych. nielsenii* Hed., or diminutive African *Hemitheinae*. Among the very smallest *Geometridae* of America numbers also the peculiar species *Sterrha bonitata* Hlst., the ill-famed devastator of the herbaria, the larva of which does not even attain a length of 1 cm.

As is the case in the members of other lepidopteral families, the size which the *Geometridae* may attain is not proportionate to the frequently luxuriant abundance of food. The limitation of size, however, seems to be rather due to their mode of moving. The high arch formed by the dorsum of the moving larva cannot

surpass a certain height without becoming a hindrance, and the way in which many Geometrid larvae extend their bodies stiffly into the air when in repose, without any hold or only with the support of a very thin silky thread, probably limits the growth and weight of the larva.

As to the way of feeding, we meet with the greatest variability among the *Geometridae* of all countries. Some species, such as the African *Coenina dentaria Sw.*, are condemned to monophagy by the complete adaptation of their shape to the food-plant, *Acacia nilotica*. Whilst others, as particularly species of *Eupithecia* and their allies, are able to alter their exterior when they change their food-plant, their colouring adapting itself to each different food-plant. Other species again may feed on different kinds of trees, though they are never found on herbs, whereas others exhibit an extreme polyphagy among herbs, without ever rising to shrubs or trees. By preferring dried plants, *Sterrhia bonitata*, which we mentioned above for its small size, becomes destructive to herbaria, and the more so since it breeds rapidly and most exactly selects the plants it wants to attack, preferably destroying certain species, particularly those having been brought into the herbaria from districts of America where the *Sterrhia* could not be discovered before.

It is obvious that the Geometrid larvae, owing to their mode of moving, can neither mine nor burrow into wood or fruit. Many species, however, are fond of blossoms and others attack the buds that are about to develop. They are therefore compelled to pass their whole larval period in the usually short flowering season of their food-plant, and as this feeding-period of the larvae is so very short, these species are unable to attain a considerable size. This is the case in most of the American *Eupithecia*, at least 150 of which occur in the United States alone.

The development of a functionary proboscis in most of the American *Geometridae* proves that they take up food and, above all, liquid. The body being generally slim would — especially in the hot districts of the neotropical region — quickly dry out, if it were not constantly supplied with liquid. It has been already stated in another place, in what excessive way some tropical *Geometridae*, such as the *Pantherodes*, continually rinse their intestines with water.

The flying-season of the *Geometridae* is relatively long. In the temperate zones of America many species fly in two generations often overlapping each other. In this case the pupa mostly hibernates. Thus we may meet with the imagines of some more common *Geometridae* in the United States, such as *Semiothisa aemulataria Walk.*, throughout the summer from March until the latter part of autumn. The hibernal Geometrid *Alsophila pomataria Harr.* may be found as imago every day from autumn until spring, and the more we approach the tropics, the longer lasts the flying-season of most of the *Geometridae*, so that the swarming period of many South-American species extends over the whole year. Thus for instance the common species, such as *Sericoptera mahometaria H.-Schäff.* or *Nepheloleuca politia Cr.* may be met with in some districts every evening throughout the year.

Most of the lepidoptera of the Geometrid family come into the collector's hands by the light-capture which is now being carried on more methodically also in the American Tropics. Nearly all the species are greedy for light, flying around the collective-lamp or street-lamp until they settle down on the lamp-post or on the ground; it is apparently only in the evenings with exceptional meteorological conditions that they are able to part from the light and fly off again. This lighting in the tropical towns means destruction to immense numbers of *Geometridae*. As long as they fly around the light, the bats work havoc mercilessly among them, and on settling for repose at the foot of the lantern they fall victims to the toads (*Bufo marinus*). When the swarming season is drawing to an end, the ground below the lamps is often densely covered with *Geometridae*, and then crowds of toads come out from their hiding-places, licking up the lepidoptera which lie about so very thoroughly that the birds flying to these places in the morning can scarcely pick up a single specimen that has been left over. I often saw numbers of *Geometridae* still lying in front of my house at midnight, not one of which was to be discovered in the morning.

All 6 of the subfamilies forming the Geometrid family occur in the American fauna. It is to be noted that two groups hitherto numbered among the *Oenochrominae* might be better classed as subfamilies: these are the *Ametridicae* and *Hedylicae*, both of which are entirely confined to the neotropical region.

1. Subfamily: **Brephinae.**

We have noted in Vol. 4, p. 1 that this very small subfamily — or according to MEYRICK section of the *Oenochrominae* — belongs only to the Nearctic and Palaearctic Regions. This, indeed, is not absolutely correct if DYAR is right in referring to it the very interesting *Caenosynteles* of Mexico; but the last-named genus has not the characteristic eye nor the general habitus of the *Brephos* group, and we only conserve its position here in order to avoid a tentative reclassification unaccompanied by sufficient research. Possibly, on the other hand, the Australian *Dirce* (vol. 12, p. 5, pl. 1 a) has more to do with the *Brephinae* than with the other *Oenochrominae*, for Dr. TURNER has pointed out that in it, as in some *Brephos*, the 2nd radial of the hindwing is obsolete. Either, therefore, MEYRICK must be followed in his assumption that we are dealing with the dispersed remnants of an archaic stirps, or else the existing classification is at fault. The early stages are only known in the case of the two Holarctic genera, *Brephos* and *Leucobrephos*.

The *Brephinae* are characterized by the small, oval eye, the extremely hairy vestiture, short but strongly hairy palpus, scaled ventral surface of the proximal part of the antenna, long cells of both wings, yet with tendency to stalking of the veins beyond, position of the 4th subcostal of the forewing, which runs not into the apex but to costa 1 or 2 mm before apex, by the 16-legged larva, the T-shaped cremaster of the pupa, etc.

1. Genus: **Brephos** Zinck.

Face and palpus clothed with very long projecting hair. Antenna of the ♂ serrate, in two European species shortly pectinate. Tibiae very hairy, the hindtibia somewhat thickened posteriorly, with the spurs very short, the proximal ones sometimes vestigial. Forewing narrow, 3rd and 4th subcostal veins coincident or extremely long stalked. Hindwing relatively ample, folded in repose, the 2nd radial not or scarcely stronger than the cell-fold. — Larva with all the prolegs present, the anterior pairs weak, scarcely used in walking. On trees. The moths appear in the early spring, and fly in sunshine.

B. infans Möschl. (= hamadryas Harr.) (1 a) is scarcely more than a race of *parthenias* L. (vol. 4, pl. 1 a), *infans*, but the teeth of the ♂ antenna are less developed; in *parthenias*, when viewed from above, the longest give to the segment nearly the aspect of an equilateral triangle, in *infans* their sides appear decidedly more flattened. *B. infans* is on an average smaller, the hindwing brighter orange and with smaller cell-spot, but both species are variable. British Columbia ♂♂ before me have broader wings than the European and Labrador and larger cell-spot of hindwing than the Eastern American. Larva on birch. Local in N.E. North America and the Canadian Rockies. — **B. oregonensis** Swett is larger, the dark scaling blackish, cell-spot of hindwing larger, more isolated. Uncus a little longer and more curved at tip, more gouge-shaped, less pointed. Oregon. Apparently the British Columbia should be transferred here. *oregonensis*.

B. fletcheri J. B. Smith is unknown to me, but is very distinct. Smaller, the forewing almost entirely sooty-black, the hindwing yellow with a rather narrow, irregular black border and a basal black area extending from one-third of the costal margin diagonally to the abdominal margin just before the anal angle; hindwing beneath with border nearly as above, a minute cell-mark and a narrow subbasal band. British Columbia: "Coldstream", in March. *fletcheri*.

B. californicus Bsd. This species and the following, briefly described from California, probably do not belong here, but have never been satisfactorily determined and the types are lost. It has been suggested that they may belong to the Arctiid genus *Leptarctia* (vol. 6, p. 306, pl. 39 b). "Aspect of *notha* and *puella*, but smaller. Forewing blackish grey, with 3 small white spots, one on the costa, another, very weakly expressed, towards the apex and the *californicus*.

third forming a small lunule above the inner angle. Hindwing yellow, somewhat fulvous, crossed near the middle by a constricted or slightly interrupted black band; border broadly black, with the fringe yellowish. Underside yellow, with two common black bands." Perhaps a slight ab. of *Leptarctia californiae* Walk.

melanis. **B. melanis** Bsd. "Size of the preceding; forewing blackish grey, with two dirty white spots, one on the costa, the other, a little smaller, above the inner angle. Hindwing and fringe entirely black. Forewing beneath crossed by a broad yellowish band." Perhaps a darker phase of *L. californiae* form *dimidiata* Stretch (Vol. 6, Pl. 39 b).

2. Genus: **Leucobrephos** Grote

Closely related to *Brephos*, but still more shaggy, with palpus and tibial spurs further atrophied, 1st median vein of hindwing long-stalked with 3rd radial. Antenna of ♂ pectinate with longer branches. Only two species known, of which the Siberian *middendorffii* Mén. has been figured in Vol. 4, pl. 1 a.

brephoides. **L. brephoides** Walk. (= *middendorffii* Möschl. nec. Mén.) (1 a). Hindwing in all the forms creamy whitish with moderate dark borders, that of the abdominal margin variable in breadth and intensity. Forewing in the type form blackish fuscous, with both the angled pale lines developed. — ab. **resoluta** Zell. has the dark parts of the forewing more powdered with white. — ab. **hoji** Grote is founded on a small and very dark specimen from Wisconsin, with the antemedian line obsolete.

3. Genus: **Caenosynteles** Dyar

Eye large, round. Palpus short, hairy. Antenna simple. Tongue undeveloped. Hindtibia with terminal spurs only. Forewing with distal margin strongly curved, cell rather long, 1st subcostal free, 2nd to 5th stalked, and connected by a bar with 3rd to 4th, 1st median well separate. Hindwing with costal margin rather long, 2pex and distal margin rounded, costal vein closely approaching subcostal in the middle, 2nd subcostal shortly stalked, 2nd radial distinct, though slender, arising somewhat behind the end of the cell-vein, 1st median well separate.

Only one species is known, and this has no apparently near affinities with any known genus (see our note on the subfamily). As DYAR remarks, it falls into the *Brephinae* by the subfamily scheme which is based on venation — 2nd radial of hindwing present, 4th subcostal of forewing running to costa before apex, but the latter character, though not yet recorded in *Oenochrominae*, would be quite possible there and is certainly found in some *Geometrinae*. Possibly the relationship is with the *Biston* group.

haploaria. **C. haploaria** Dyar (1 a). A plain grey species with simple pattern, but not liable to be confused with any other. Mexico: Tehuacan and Zacualpan (R. MÜLLER).

2. Subfamily: **Oenochrominae.**

The true *Oenochrominae*, as described in Volumes 4 and 12, are scarcely represented in the New World, except by the *Achlora* group, but a few scattered genera of doubtful location are at present referred here, while two tribes (perhaps better as subfamilies), the *Ametridicae* and *Hedylicae*, belong exclusively to the Neotropical Region. The subfamily is assumed to contain all the *Geometridae* in which the 2nd radial of the hindwing is fully developed while the forewing has not the characteristic venation of either the *Hemitheinae*, the *Sterrhinae* or the *Larentiinae*. It would therefore, as noted above, not be made much more incongruous by the inclusion of the *Brephinae*. *Obelopteryx*, which WARREN placed here, belongs to the *Sterrhinae*.

1. Genus: **Alsophila** Hbn.

Face smooth, rounded. Palpus extremely short. Tongue wanting. Antenna of ♂ with fascicles of long cilia. Hindtibia with all spurs, those of the ♀ short. ♀ entirely apterous, with the tail more or less tufted. ♂ with the wings delicate, folded in repose, the scaling thin (least so in the American species), the hindwing relatively ample, with the costal vein anastomosing strongly with the subcostal, as in the *Larentiinae*, the forewing with all the subcostals present, but variable. — The early stages are briefly noticed in Vol. 4,

p. 2; the pupal cremaster is similar to that of *Brephos*, but there are few other points of contact between the two genera. Several authors consider that there is a real relationship between *Alsophila* and *Palaearcta* Riley, which on account of the loss of the 2nd radial of the hindwing is definitely assignable to the *Geometrinae*, further agreeing with *Phigalia* and a few others of the *Biston* group, and disagreeing with *Alsophila*, in the spinose abdomen and the non-anastomosis (or incomplete anastomosis) of the costal vein of the hindwing. *Alsophila* is exclusively Holarctic.

A. pometaria Harr. (= *restituens* Walk., *autumnata* Pack.) (1 a). The ♂ is recognizable at once by *pometaria*. the formation of the postmedian line of the forewing as well as by the structural characters; it has rather more rounded forewing, and of a somewhat deeper tone, than the Palaearctic *aescularia* and *japonensis*. The ♀ has the anal tuft less developed than in its European relatives. It is only too well known in Canada and the United States, its larva (the "Fall Cankerworm" of American economic entomology) often causing serious damage in orchards as well as to shade trees. The moth generally emerges about October, but continues to appear in mild weather in the winter and even in early spring.

2. Genus: **Cortixa** Schaus

Build slender. Face protuberant, smooth. Palpus short. Antenna of ♂ minutely ciliated. Hindtibia with a single pair of spurs. Forewing with the 1st and 2nd subcostals stalked, 1st radial separate at its origin from 3rd—5th subcostals, 2nd radial normal, 1st median separate. Hindwing with costal free, somewhat approximated to subcostal about the middle of the cell, 2nd subcostal connate with 1st radial, 2nd radial slight, scarcely more than a fold, 1st median separate. One species. As with *Caenosynteles* in the *Brephinae*, we leave this genus in an evidently inaccurate position until some light is obtained on its taxonomy.

C. aurudaria Schaus. Golden yellow above and beneath, the forewing with costal margin black and hindmargin grey above, yellow beneath; fringes black, tipped with grey. "Peru", without exact locality, only the type known.

3. Genus: **Zanclopteryx** H.-Sch.

Face smooth. Palpus moderate or rather long. Antenna long, in the ♂ with fascicles of cilia. Legs rather long and slender, the hindtibia with a single pair of short spurs. Wings white, thinly and smoothly scaled. Forewing with apex acute, sometimes falcate; subcostal venation somewhat variable, but differing from that of the old-world *Derambila* in that the 1st subcostal arises from the costal. Hindwing with the costal closely approximated to the subcostal for a short distance near the base, the 2nd subcostal stalked with the 1st radial, the 1st median well separate. Early stages unknown. A small genus, ranging from Mexico to Brazil and evidently closely related to *Derambila*.

Z. conspersa Warr. Less white than any other *Zanclopteryx*, the wings densely dusted with dark *conspersa*. fuscous; apex of forewing, even in the ♂, strongly falcate, postmedian curved, not oblique; median of hindwing strong, slightly curved inward. S.E. Brazil.

Z. aculeataria H.-Sch. (1 b), the type of the genus, was figured from a ♀ and is represented with extremely falcate forewing, but the only known species for which it can be intended is the well-known one from *aculeataria*. S.E. Brazil here figured. The ♀♀ known to me are only a little more acuminate-winged than the ♂♂. In this species the ♂ antennal cilia arise from short pectinations.

Z. mexicana Prout (1 b). Generally rather smaller than *aculeataria*, the brown irroration a little *mexicana*. stronger, the markings weaker, the postmedian often marked with dots on the veins; the continuous terminal line of *aculeataria* is replaced by interneural dots and the fringe is whiter. Antennal pectinations of ♂ quite rudimentary. Central America, Trinidad, Venezuela and Ecuador; perhaps also in E. Bolivia.

Z. punctiferata Prout. Again smaller (20 mm), the white wings only faintly speckled with brown distally. *puncti-* Forewing with antemedian line wanting, the oblique postmedian consisting of light grey-brown spots on the *ferata*. veins from 5th subcostal to 2nd submedian, the anterior one small, the succeeding ones forming a slight outward curve, the one on SM² diffuse, at about $\frac{3}{5}$; cell dot rather larger; termen and fringe as in *mexicana*. Hindwing similar, but with two lines of vein-dots. "Santa Marta" (Bouchard). I was informed that this Santa Marta was in Brazil, but now believe it is the wellknown locality on the N. Coast of Colombia. Unfortunately confirmatory material is wanting, the type ♀, with markedly acute apex, remaining unique.

Z. uniferata Walk. (1 b) is the most widely distributed species. As large as *aculeataria*, but plain white *uniferata*. with blackish costal edge and fine terminal line; the veins only appear blackish in rubbed specimens. Known from Panama, the Bahamas, Jamaica, Venezuela and the Guianas, Colombia to Bolivia, Paraguay and S.E. Brazil. WALKERS' type was from the Amazons (Ega).

- venata*. **Z. venata** Warr. (1 b) is much smaller, with the veins broadly darkened. Antennal ciliation of ♂ sessile. Iquitos (type ♂), Paramaribo (allotype ♀, here figured), Peru and E. Bolivia.
- subsimilis*. **Z. subsimilis** Warr. (1 b). Still more like a diminutive *uniferata* in that the veins are not darkened. Costal edge more finely darkened; terminal line slight or wanting. Palpus rather less long. Antenna as in *venata*. Colombia to French Guiana, also from Trinidad; the type from N.W. Venezuela.
- floccosa*. **Z. floccosa** Warr. (1 b). ♀ rather rounder-winged than the preceding, with rather shorter palpus, otherwise very similar. ♂ very distinct in that the costa near the base is fringed with curled, floccous hair, while the proximal part of the forewing and the middle of the hindwing bear patches of coarse grey or drab scaling. Dutch and French Guiana.

4. Genus: **Zanclophacos** *Bastelb.*

Close to *Zanclopteryx*, perhaps better treated — as in the case of *Z. floccosa* — as a specialised section, but I have not studied the type. ♀ unknown; ♂ distinguishable by the presence on the hindwing of a long-fringed lappet from base to $\frac{1}{3}$ of abdominal margin, widening distally; perhaps also by the palpus, which is described as “very long”.

- nigri-venata*. **Z. nigrivenata** *Bastelb.* (1 b). Distinguishable from *Zanclopteryx venata* by its much larger size, falcate apex and specialised hindwing. “Brazil”, only the type known.

5. Genus: **Racasta** *Walk.*

This genus and the six which follow, together with *Noreia* *Walk.* and a few other Indo-Australian and African genera, should perhaps be regarded as a single large genus, as the structural differences which separate them are for the most part very slight. I conserve however, for the present, the classification outlined by WARREN in his scattered papers and elaborated by myself in WYTSMAN’S “Genera Insectorum”. In any case they form, with *Alex* and a few other outliers, a very natural group. They differ essentially from the *Zanclopteryx* group in their more robust build, ampler wings, presence of all the spurs on the hindtibia and other characters. The face is smooth. The normal venation of the group is: SC¹ of forewing from cell, anastomosing with C, SC² from stalk of SC³⁻⁵, anastomosing with SC¹ and with SC³⁻⁴, M¹ separate; C of hindwing shortly approximated to SC near base, then rapidly diverging, SC² not stalked, M¹ well separate. Irregularities will be noticed in their places. *Racasta* may be known by the shining white wings, without strongly falcate apex. Antenna of ♂ ciliated. Venation normal.

A. Section *Racasta* *Warr.* Palpus short. ♂ with antennal ciliation very short, hindwing not specialised.

- spatiaria*. **R. spatiaria** *Guen.* (1 c). The type form of this species has the apex slightly falcate, transverse lines slender and very pale, at costal margin weak. Minas Geraes to Rio Grande do Sul and the adjacent part of Argentina. — **caberaria** *Walk.* (1 c) is perhaps still less falcate-winged, on an average somewhat larger, and has the lines stronger, not weakening costally, on the contrary sometimes strengthened, foreshadowing the following form, the first two generally with a slight proximal curve anteriorly. Venezuela (type), Colombia, Panama, Costa Rica, Mexico. — **extendata** *Dogn.* (1 c) is generally larger; lines more or less thickened, costally in ♂, and often in ♀, forming enlarged blackish spots. Ecuador and Peru.

B. Section *Leucoreas* *Warr.* Palpus less short. ♂ with ciliation moderate, hindwing beneath with mass of hair (partly reddish) between fold and abdominal margin proximally.

- rhodosticta*. **R. rhodosticta** *Warr.* (1 c). The largest species of the group. Named from the underside, on which the lines (except the proximal one) are represented by large, dull rosy vein-spots. Bolivia (type) and S.E. Peru.

6. Genus: **Dolerophyle** *Warr.*

Less pure white than *Racasta*, the forewing with falcate apex, the ♂ antenna shortly pectinate. Palpus as long as in the section *Leucoreas*. Only one species.

- nerisaria*. **D. nerisaria** *Walk.* (= *tendinaria* *Fell.*) (1 c). Scheme of markings quite different from that of *Racasta*, more recalling *Leptoctenopsis* or especially some old-world *Ocnochrominae*, notably *Heteralex*. Only known from the Amazon; Tring Museum has recently received a short series from Para.

7. Genus: **Dolichoneura** *Warr.*

Palpus rather slender, upcurved. Antennal ciliation of ♂ moderate to rather long. Hindwing with cell very short (about $\frac{1}{3}$), the median veins in the ♂ not modified. Forewing with distal margin, except at apex, straight or faintly convex.

A. Forewing without fovea.

D. nigrinotata Warr. (1 c). Rather variable, but with the black cell-dots always stronger than in the *nigrinotata*. other species; nearly always also there is a blackish mark at the base of R³ of the forewing. Antennal ciliation of ♂ long. Apex in ♀ very acutely produced. French and British Guiana, Lower Amazon, Trinidad and British Honduras.

D. innotata Warr. (1 d). ♂ rather broader winged than that of *nigrinotata*, ♀ with apex rather less *innotata*. produced. Darker, cell-dots much smaller, postmedian line more proximal, shaped more as in an *Achlora*. No dark mark at R³. Forewing with 1st subcostal stalked with the others (in *nigrinotata* from cell). British and French Guiana, Ecuador and S.E. Peru, few specimens yet known.

D. eriphyle Schaus, according to a figure of the type ♂ from Costa Rica, is rather larger than *oxypteraria*, *eriphyle*. hindwing slightly more rounded; no white spots or dots; the bands brown, the proximal one on the hindwing not double, the subterminal greyish. A worn, rather broad-winged ♂ from Muzo, Columbia, seems to agree; if so, the structure is as in *nigrinotata*.

D. missionis Prout (1 d) is the smallest *Dolichoneura*, more weakly marked than *eriphyle*, but with *missionis*. a distinct blackish cell-dot on forewing. Antennal ciliation (as also in the following groups) shorter than in *nigrinotata* and *innotata*. Forewing with 1st subcostal arising from cell, hindwing with 2nd radial from before middle of discocellulars, especially in the ♂. Argentina: Misiones. A pair from Villa Rica, Paraguay (coll. JOICEY) belong with it.

D. revisa sp. n. ♂, 34 mm. Larger and greyer than *missionis* (about the colour of *oxypteraria*), distal *revisa*. margins less rounded; the brown lines thicker, more sharply expressed, those of the forewing more irregularly lunulate, with more conspicuously pale edging; cell-dot brown, less small than in *missionis*, narrowly surrounded with pale scaling; both wings with a whitish subterminal line, accompanied distally by indistinct dark marks, nearly as in *oxypteraria*. ♀ darker and more variegated than that of *oxypteraria*, with more produced apex, in general colouring recalling *Pycnoneura turpis* (1 e). São Paulo: Alto da Serra, 800 m, 7 and 10 March 1913 (E. D. JONES), type ♂ and allotype ♀ in Mus. Brit., together with a ♀ from "Santa Rosa" which I formerly referred doubtfully to *missionis*. A ♀ from Rio Janeiro is in the JOICEY collection and one from Santa Catharina, Jara-gua (FR. HOFFMANN) in Mus. Wien.

D. ichnaea sp. n. ♂, 41 mm. Markings nearly as in *missionis* (1 d), colour rather darker, size about *ichnaea*. as in *eriphyle*, different from both in having irregular white dots on the subterminal of both wings, as in *albidentata*, and the central band of the hindwing straight (that of *eriphyle* being bent as in *oxypteraria* or in *P. turpis* (1 e); proximal line of hindwing pale-edged on both sides. 1st subcostal of forewing long-stalked with 2nd—5th. Distal margin of forewing rather more oblique than in the species named, very straight. Peru: La Oroya, Rio Inambari, 3100 feet, September 1904 (G. OCKENDEN), type in Mus. Tring. French Guiana, a pair in coll. OBERTHÜR, ♀ with apex produced. Taperinha, near Santarem (Dr. ZERNY), a worn ♂. A very worn ♂ labelled "Brazil", in Mus. JOICEY, is probably conspecific, unless the apex is too produced.

D. oxypteraria Guen. (1 e). Relatively shorter-winged than the 2 preceding, less brown, with white cell-dots, *oxypteraria*. etc. Apex of forewing in ♀ minutely produced. The name-typical form is grey. — ab. **albidentata** Warr. (1 d) *albidentata*. is darker and sometimes more mixed with brown, the white markings more conspicuous. Both forms inhabit the Guianas, Amazons and Chanchamayo. — **squalida** Schaus, from Costa Rica, seems to have the apex (♀) *squalida*. slightly more produced and the distal margin of the hindwing perhaps rather straighter.

D. eutheges sp. n. 37—38 mm. Closely similar to rather dark, weakly-marked *oxypteraria*, the forewing *eutheges*. with the antemedian almost obsolete, no white cell-spot, the hindwing with the median double line straighter. White dorsal dots posteriorly on first 3 abdominal segments well developed. Forewing narrower, with apex more acute and termen perfectly straight or with the least possible inclination to concavity, suggesting a *Pycnoneura*. Notwithstanding this difference of shape, I should have regarded it as a race or representative species but for important differences of venation: forewing with 1st subcostal arising well down the stalk of the others (in *oxypteraria* from cell); hindwing with cell as short as in some *Pycnoneura*. Gorgona Island, off W. Colombia, at light, 200 feet, 20 February 1924 (C. L. COLLENETTE, St. George Expedition), 2 ♂♂ in coll. Brit. Mus. With them was taken a poor ♀ apparently indistinguishable from *oxypteraria*, and with the venation of that species, which I at first assumed to be their ♀, a possibility not yet absolutely precluded, though the sexual divergences would be startling.

D. convergens Warr. (1 d). Easily known by the white ground-colour and heavy markings. Hindwing *convergens*. with discocellulars oblique, the cell anteriorly nearly as short as in *Pycnoneura*. Forewing with 1st subcostal from cell. The ♂♂ are common in the Carabaya district of Peru and also known from French Guiana. I do not know the ♀.

B. Forewing in ♂ with a long and strong fovea behind base of cell.

foveata. **D. foveata** Prout is superficially very much like a small, broadly-banded *convergens* (1 d) with the markings slightly browner, the proximal ones of the forewing extending almost to the costa. Hindwing with 2nd radial closely approaching 1st, diverging distally. Surinam (type) and French Guiana.

8. Genus: **Pycnoneura** Warr.

This will almost certainly have to be sunk as a section of the preceding genus, from which it scarcely differs except that the cell of the hindwing is still shorter ($\frac{1}{4}$) and the veins of the ♂ more or less distorted, generally on the underside somewhat swollen and sometimes in part clothed with hair. There exist to a certain extent intermediates, such as *argyroclines*, with slightly less extreme cells, and *Dolichoneura foveata*, with distorted venation (of the forewing), yet evidently not separable generically from *convergens*, with simple venation. Forewing in the ♂ nearly always with distal margin subconcave or sinuous; in the ♀ with the apex minutely falcate; the subcostal veins rather variable; fold in ♂ curved forward, rather closely approaching the proximal part of 2nd median; median veins of hindwing in ♂ usually much curved in proximal part; 2nd median of forewing generally arising more proximally than in *Dolichoneura*, especially in the ♂, where its base is proximal to the middle of the cell.

WARREN cited as the genotype "*oxyptera* Guen.", by which he understood the species afterwards named *rectilineata*; the true *oxyptera* (= *albidentata*) is the type of *Dolichoneura*.

ablataria. **P. ablataria** Guen. (= *quadripunctata* Walk., *ardeata* Feld.) (1 d) is a pale-coloured species with bright-brown shading at termen and bright-brown fringe; cell-dot of forewing present, though minute; lines fine, irregularly crenulate; terminal black dots conspicuous near apex of forewing, then decreasing in size and becoming merged in the dark terminal line. Only known from the Amazons. — **fosteri** *subsp. nov.* is larger (37—38 mm), with the distal margin of the forewing straight, not appreciably subconcave. Paraguay: Sapucay (W. FOSTER), 2 ♂♂ in Mus. Tring.

monops. **P. monops** Prout differs from *ablataria fosteri* in its darker, more violet-grey tone of colour, large circular cell-dot (spot) of forewing and weaker, but somewhat more sinuous lines. Possibly an aberration or local race. Chanchamayo.

manogramma. **P. manogramma** *sp. n.* ♂, 34 mm, Shape somewhat as in *cinerea* (1 d), but with the costal margin of hindwing relatively shorter. Considerably darker (purplish grey), differing structurally in that SC¹ of the forewing arises from the cell, and superficially in that the lines are white, single, extremely slender and in places interrupted. French Guiana, the type from St. Jean de Maroni in Mus. Tring, the paratype in Mus. Brit., ex coll. OBERTHÜR. Upper Amazon: Taperinha, near Santarem (H. ZERNY), 5 ♂♂ in Mus. Wien. Also a ♂ from Matto Grosso (C. L. COLLENETTE) in coll. JOICEY.

cinerea. **P. cinerea** Btlr. (1 d) is larger than *manogramma*, the ground-colour more ashy, the 1st two lines darker than the ground-colour. Forewing with 1st subcostal short-stalked, in one examined specimen connate. Hindwing with 2nd radial arising near 1st. Described from the Amazons, known also from Colombia and British and French Guiana. — **albicata** *subsp. nov.* ♂, 39 mm. Rather larger than *cinerea* and nearly white, the irroration being very faint, light drab, only distally to the almost imperceptible white subterminal line slightly better developed; the dark terminal line and dark proximal part of fringe stand out very sharply by contrast. Matto Grosso: Burity, 30 miles N.E. of Cuyabá, 2250 feet, 1—15 October 1927 (C. L. COLLENETTE). Type in coll. JOICEY.

intercursa. **P. intercursa** *sp. n.* ♂, 40 mm. Intermediate between *cinerea* and *rectilineata*, having about the shape and coloration of the former, though rather more shaded with irregular darker grey cloudings, but with lines recalling those of *rectilineata*, though not edged with white; antemedian of forewing somewhat indented in middle, gently excurved before and behind, that of hindwing regularly curved; postmedian on forewing rather less acutely angled than in *rectilineata*, then parallel with termen but slightly sinuous, on hindwing rather more proximal, not quite so straight as in *rectilineata*; subterminal on both wings less zigzag posteriorly than in that species, less incurved in the middle than in *cinerea*. Possibly a race of the latter, but SC¹ of the forewing arises from the cell. Bolivia: Prov. del Sara, Dep. Santa Cruz, 450 m (G. STEINBACH), type in coll. JOICEY.

rectilineata. **P. rectilineata** Warr. (1 d) is distinguished by its shape, its straight postmedian, strong subterminal, etc. The 1st subcostal of the forewing is rather long-stalked with the others. French and British Guiana; Amazons. — **cohibita** *subsp. nov.* only differs in its slightly less extreme shape. Bolivia, the type in coll. JOICEY, collected with that of *intercursa*. A ♀ from Tarapoto, Peru (coll. OBERTHÜR) no doubt belongs with it.

turpis. **P. turpis** Warr. (1 e). Near *rectilineata* in size, shape and structure, but very different in the bands, which are much lighter brown, undulate or lunulate, the antemedian of the forewing as strong as the post-

median, the latter less oblique, less angled at 1th radial; subterminal weak, especially on forewing. Bolivia (type) Peru, Lower Amazon and Surinam.

P. protrusilinea *Prout*. Nearest to *turpis* (1 e), forewing less pointed, lines browner, the postmedian more irregular, the forewing with a fovea behind the base of the median vein and its 2nd branch. Chanchamayo (type) and S. Peru. — **psycteria** *subsp. nov.* (1 e) is rather paler and greyer, almost or altogether without the brown admixture, rather strongly recalling *argyrodines* except in shape. French Guiana. *protru-*
silinae.

P. argyrodines *sp. n.* (1 e). Rather short-winged for a *Pycnoneura*, further distinguished from *psycteria argyrodines*, by the somewhat different — in the distal area more uniform — distribution of the dark-grey shading and the more sharply expressed whitish markings. Forewing with SC¹ connate or only very shortly stalked in the ♂ somewhat better stalked in the ♀; ♂ fovea stronger than in *protrusilinea*, with the median vein more curved in front of it; hindwing with cell rather less short. French Guiana: St. Jean de Maroni, type in Mus. Tring. The OBERTHÜR collection also contains 1 ♂ from Tonantins, AMAZONS (DE MATHAN).

P. oxygramma *sp. n.* ♂ 38—40 mm. In coloration and markings similar to the least dark examples of *rectilineata*, but with the dark lines not bordered with white, at the hindmargin of the forewing and on the hindwing more approximated, the postmedian of the forewing still more acutely angled, the subterminal line less strong. Structurally distinct in having the median vein of the forewing very strongly swollen from the base of the cell to the base of M², the area behind this swelling developed into an elongate fovea, nearly as in *argyrodines*. Muzo, Colombia, 400—800 m (A. H. FASSL), type in coll. JOICEY, paratype in coll. L. B. PROUT. *ex-oxygramma.*

9. Genus: **Entogonia** *Warr.*

Distinguished by the extremely glossy scaling and especially by the loss of the base of the 1st subcostal of the forewing, which in consequence arises from the costal. On both these characters *icaunaria* *Walk.*, which was formerly placed in *Leptoctenopsis*, agrees perfectly with the type species *schistacea*. In the ♂ of *schistacea*, the middle of the abdominal margin of the hindwing is expanded into a small lappet, which is fringed with long hair.

E. schistacea *Warr.* (1 e). Variable in size; in the smallest ♂ before me the forewing has a length of only 10 mm, while in the largest ♀ it reaches 19 mm; otherwise tolerably constant. Bolivia (type), Matto Grosso, Santarem district and French Guiana. — **spitzi** *subsp. nov.* is much larger (length of ♂ forewing 21 or 22 mm), forewing with a conspicuous white cell-spot, both wings with a well-developed crenulate white subterminal line, underside more sharply marked. Founded on a single ♂ from Alto da Serra, São Paulo, Brazil, collected by R. SPITZ in October 1922 and now in the Tring Museum, but will certainly prove a valid race, if not a species. *schistacea.*

E. icaunaria *Walk.* (1 e) is distinguishable by its small size, darker and more brownish tone, more produced apex of forewing, dark postmedian line, more distally placed than that of *schistacea*. Described from the Amazons, known also from Venezuela and French Guiana. *icaunaria.*

10. Genus: **Leptoctenopsis** *Warr.*

Differs from *Dolichoneura* in the less shortened cell of the hindwing, from *Achlora* in the shorter palpus, from both generally in shape and markings. In most of the species there is a conspicuous and highly oblique line from near the apex of the forewing to the proximal part of the abdominal margin of the hindwing, but markings, shape and structure are all variable and the genus is not an entirely natural one. The ♂ antenna may have pairs of slender pectinations (approaching those of *Achlora*) or mere ciliations (as in the preceding genera).

A. Section *Parachoreutes* *Warr.* Hindwing with eostal vein normal; antenna of ♂ eiliated.

L. melusina *Prout* (1 e). Smaller than *calexaria* and differently shaped, besides differing in the structure of the ♂ antenna. The name-typical race, from Paraguay and S.E. Brazil, is strongly suffused with dark grey. — ab. **deceptoria** *nov.* is light ochreous brown, almost as in *subpurpurea*, only a little paler; otherwise quite typical. Sapueay, Paraguay, 1 ♂, among good numbers of the type form. — **uxorculea** *Prout* is a pale race from Venezuela, scarcely darker in colour than *calexaria*. The same form occurs in Colombia and French Guiana and Tring Museum has one labelled "Amazon". *melusina.*

L. tatochorda *Prout* (1 e). ♂ unknown, but probably with the structure of *melusina*. Palpus longer, distal margins more convex, postmedian line straight, coloration different. Dominica. *tatochorda.*

L. subpurpurea *Warr.* (1 f). Brighter and less sprinkled with black than *tatochorda*, the postmedian generally very fine and faint, in shape intermediate between those of *melusina* and *tatochorda*. Very charac- *sub-*
purpurea.

teristic are the elongate-triangular bright-red (sometimes black-mixed) subcostal patch of the forewing above and the bright purple-reddish, almost unmarked underside. — ab. **bimaculata nov.** has a pair of black spots outside the postmedian of the forewing, before and behind M². *subpurpurea* was described from British Guiana, but reaches Gorgona Island, Colombia, Trinidad, Venezuela, French Guiana, Para and even — though rarely — S.E. Peru, Bolivia and Matto Grosso.

leucographa. **L. leucographa Dogn.** (1 f). Forewing much more falcate, hindwing shaped nearly as in *subrufa*; the white hindmarginal markings distinctive. Peru and the Amazons.

B. Section *Leptoctenopsis* Warr. Hindwing with costal vein normal; antenna of ♂ slenderly quadripectinate.

calexaria. **L. calexaria Walk.** (= *relectaria Feld.*) (1 f). In addition to the distinctions from *melusina uxorcula* noted above, this species has the oblique line broader and more closely approaching the apex. Only known from the Amazons and the Guianas.

translativena. **L. translativena Prout** (1 f). Hindwing more rounded than in the other species of the section and with the 2nd radial, especially in the ♂, arising much nearer to the 3rd than to the 1st, a very rare character in the Geometridae. Amazons, only one pair known until Dr. ZERNY took a ♂ at Taperinha, near Santarem, 21—31 July 1927.

murina. **L. murina Warr.**, of which the type ♂ remains unique, has about the size of *calexaria*, the antennal pectinations slighter, the termen of the hindwing still straighter, the ground-colour darker, the line replaced by a diffuse black-grey shade which shows (as in *mena*) an oblique extension baseward from the 1st radial to the costal margin of the forewing, some black, pale-edged vein-dots outside this shade, those of the hindwing excurved in the middle; forewing in addition with a hindmarginal patch recalling that of *leucographa* (1 f), but broader and more yellowish. Suapure, Venezuela.

olivacea. **L. olivacea Prout** is another unicum, founded on a ♀. Intermediate in size and shape between *leucographa* and *mena*, resembling the former in its colour and gloss, but with an oblique, rather indistinct, olivaceous line from near apex of forewing to middle of abdominal margin of hindwing, edged proximally and distally with whitish, especially on the veins. Possibly a remarkable form of *mena*, as I have seen a ♂-ab. of the latter from N. Venezuela which somewhat approaches it. Espiritu Santo.

mena. **L. mena Druce** (1 f). A rather large and dark species, especially in the ♀. Antennal pectinations of the ♂ well developed. Not likely to be confused with any other hitherto-known species. Panama (loc. typ.) Colombia, Venezuela, French Guiana, Peru.

redimita. **L. redimita sp. n.** (1 f). ♂ 40—45 mm. Close to *mena*, but with the upperside more red-brown, approaching the colour of *subpurpurea*, the oblique line fine, deeper red-brown, not black-mixed, still more oblique, reaching the abdominal margin nearer the base; antemedian line of forewing better developed, marked with black dots on median and submedian veins; a zigzag postmedian line developed on both wings. Underside unicolorous; scarcely brighter than in *mena*. "Amazons" (ex. coll. MEYER), 4 ♂♂ in the Tring Museum. Rather variable. Dr. ZERNY has recently shown me a ♂ from "French Guiana" which agrees accurately.

C. Section (? gen. div.). Hindwing with costal vein remote from subcostal, ♂ with hair-tuft at middle of abdominal margin; antenna of ♂ strongly dentate with fascicles of cilia.

subrufa. **L. subrufa Warr.** (1 g). Apart from the structure, this species differs from *redimita* in having the apical projection of the forewing less acute, the ground-colour brighter, especially beneath, where it is as red as in *subpurpurea* and bears on each wing a black cell-dot. The name-typical race is blurred, without definite markings. Ecuador. — **plagiogramma Prout**, from French Guiana and the Lower Amazon has a deep red line nearly as in *redimita*, but broader and black-mixed, with some blackish vein-dots outside it, on the forewing parallel, on the hindwing diverging as in *redimita*; underside also with a thick dark postmedian line.

11. Genus: **Achlora** Guen.

Antenna of ♂ doubly bipectinate, as in Section B of *Leptoctenopsis* or more strongly. Wing-shape and markings more as in the Indo-Australian genus *Noreia*; underside more strongly marked than upper. Palpus with 2nd joint more heavily scaled than in Section B of *Leptoctenopsis*, less noticeably curved; 3rd joint in ♀ distinct, sometimes enormously elongate.

A. Section *Euctenachlora* Warr. ♂ without tufts on hindwing beneath, the antennal pectinations long; 1st median of hindwing from cell.

euctenachlora. **A. euctenachlora Prout.** The largest species excepting *coenobiata*. Antennal pectinations exceptionally long, about 10 times diameter of shaft and continued nearly to apex. Reddish brown, nearly as in *coenobiata*,

but without such definite (lighter and darker) alternate shades between the postmedian and subterminal lines; underside less reddish and more sharply marked than in *coenobiata*, with the subterminal more deeply dentate. "Brazil", probably from BATES's Amazon expedition.

A. zoë *Prout* (1 g). Intermediate in size and in the antennal pectinations between *euctenachlora* and *zoë*. *injunctaria*, but with the coloration of the most purplish forms of *perigearia*. ♀ palpus with the 3rd joint a little longer and more slender than in that of *maronii*. British Guiana; also from Maroni River and Teffe.

A. injunctaria *Hbn.* (1 g) is a little smaller and more brownish and is the only species of the section *injunctaria* yet known from the Rio Janeiro district. — ab. **hormota** *nov.* (1 g) has a subterminal band of almost confluent dark spots, almost exactly as in *maronii* but becoming obsolete towards costa of forewing. Minas Geraës (FRUHSTORFER), type ♂ in coll. BASTELBERGER.

A. doris *Prout*, from Para, is like a diminutive (30—32 mm) *zoë* but with the antennal pectinations of the ♂ little longer than in Section B. Palpus of the ♀ with the 3rd joint considerably longer than in *injunctaria*, but not so extreme as in *perigearia*. Also known from British Guiana.

B. Section *Achlora* *Guen.* ♂ with drab or buff hair-tufts at the 2nd median vein of the hindwing beneath, pectinations moderate or rather short; 1st median of hindwing often stalked.

A. coenobiata *Feld.* (1 g). ♀ palpus with 3rd joint shortish, hindwing with 1st median arising from hind angle of cell. A large, bright brown species, of somewhat variegated appearance and with large cell-dot on hindwing. Bogota. The ♂ is unfortunately not quite certainly known, but a worn ♂ from Muzo which seems to belong to it shows a hair-tuft directed forward from M^2 of hindwing beneath, antennal pectinations moderate, apical third not pectinate.

A. maronii *Th.-Mieg* (1 g) is similar, in its banded appearance, to *coenobiata*, but has more nearly the size and ground-colour of *perigearia*. The ♂ has nearly the structure of *cuprinaria* ♂, but lacks the supplementary tuft of hair between the 2nd median and the fold on the hindwing. ♀ palpus rather longer than in *coenobiata*, with rather longer 3rd joint. Hindwing with M^1 in the ♂ very shortly stalked, in the ♀ just separate. Antemedian line of forewing forming two strong outward curves. Maroni River and Trinidad. Also a ♂ from Gorgona Island, off Colombia (St. George Expedition), and a faded ♂ from the Amazons (coll. FELDER), which I formerly (Nov. Zool. Vol. 23, p. 154) mistook for *coenobiata*.

A. perigearia *Guen.* (1 g) is remarkable for the very long, slender 3rd joint of the ♀ palpus. Hindwing with M^1 arising close to, or in the ♂ at the posterior angle of the cell, M^2 of the ♂ beneath with a suberect tuft of hair in front and a more appressed patch behind. Antennal pectinations of the ♂ short, the longest ones less than 3 times the diameter of the shaft. Brazil (loc. typ.), Argentina, Paraguay, Peru and Colombia. — **sancti-ernesti** *form. nov.* (? *sp. n.*) is larger than the ♂♂ of *perigearia*, with the hindwing relatively ampler, its distal margin being more rounded; structure otherwise as in *perigearia*, the antennal pectinations a very little stronger, M^1 from hind angle of cell; coloration and markings as in the most purple forms of the allies. Bolivia: San Ernesto, 68° W., 15° S., 1500 m., August—September 1900 (SIMONS), type in Mus. Tring.

A. cuprinaria *Guen.* (= *cuprearia* *Guen.*) (1 g). Extremely like *perigearia*, but with appreciably longer antennal pectinations and with the 1st median of the hindwing well stalked in the ♂, more shortly or scarcely stalked (but never separate) in the ♀. Trinidad, Venezuela, the Guianas (GUENEE's type from Cayenne) and the Amazons.

Tribe Ametridicae.

The following four genera, which form perhaps a separate subfamily, are characterized by their venation which (excepting the Oenochromine separation of the costal of the hindwing from the cell) resembles that of *Anisodes*, all the 5 subcostals of the forewing being stalked, sometimes with a very small areole at the base of the stalk. Antennae long and legs slender, as in the otherwise unrelated genera *Eumelea* and *Zanclopteryx*. FORBES (Psyche, Vol. 32, p. 109) considers that the antennal structure shows more relationship to the *Apicia* and *Cleora* groups of *Geometrinae* than to the true *Oenochrominae*.

12. Genus: **Ametris** *Hbn.*

Differs from the 3 following genera in that the discocellulars of the forewing bear no tuft of raised scales, while the hindwing has neither the irregular shape nor the large hyaline patch of *Macrotis*. Antenna of ♂ with long, fine pectinations. Hindtibia with 4 normally placed spurs. Only two species are known.

A. nitocris *Cram.* (= *nitocritaria* *Hbn.*, *peninsularia* *Grote*) (1 h). A well-known species, occurring in Mexico, Florida, Dominica, Trinidad, and common throughout Central and the Northern part of South

- pubibunda*. America, reaching Bolivia and Matto Grosso. — ab. **pubibunda** *Th.-Mieg* has both wings entirely suffused with reddish. Occasional in many localities, perhaps induced by moisture, like some similar variations in the *Hemitheinae*. — ab. **albimacula** *Th.-Mieg* has the red, bi-pupilled spot of the hindwing replaced by an enlarged, entirely white one. Likewise distributed. — Egg cylindrical, twelve-ribbed, the ribs erested with white dots. Larva rather slender, cylindrical, with some small black prominences, the ground-colour generally dull olivaceous green, occasionally vinous: head, except in 1st stage, bilobed. Bred in Florida on *Coccoloba floridana*, eating only the young leaves. Pupa in a very slight silken cocoon in the earth; slender, light-brown, with long projecting wing-cases.
- bitactaria*. **A. bitactaria** *Walk.* (1 h). Rather larger, with much longer pectinations, hindwing with distal margin dentate, a dark red spot at apex and other differences. Jamaica.

13. Genus: **Macrotetes** *Westw.*

Abundantly distinct from *Ametris* in the longer palpus, more specialised antennae, angulated wings, large hyaline white spot of hindwing and other characters. The 3 species are closely similar and have often been confused.

- commatica*. **M. commatica** *Prout* (1 h). A large species. ♀ unknown. ♂ antennal shaft without specialised scaling. Hindwing with the white mark shortened, but with a narrow tail along the 3rd discocellular. Ecuador, E. Peru (type) and E. Bolivia.
- netrix*. **M. netrix** *Cram.* (= *netrata* *Fb.*, *netricaria* *Hbn.*, *netricalis* *Walk.*) (1 h). Generally rather less large than the other two species. Antennal shaft of ♂ clothed beyond the middle for some distance with light-brown hair or pile. Antenna of ♀ simple. Vertex rosy; last segments of abdomen flesh-coloured dorsally. Dutch and British Guiana and Alto da Serra, Santos. Larva slender, cylindrical, twig-like, blue-grey, with black pile dorsally and some fine white irroration, an orange mark on and above anterior prolegs; head bifid. On *Ficus*. Pupa green, with long antenna- and leg-cases; on the ground.
- cordovaria*. **M. cordovaria** *Guen.* (= *cordovalis* *Walk.*) (1 h). Antenna of the ♂ with stronger, darker and much more extended hair and specialised scaling, which, moreover, is more proximally placed, commencing near the base of the shaft. Distal margins with the secondary erenulations stronger than in *netrix*; markings exceedingly similar, subterminal line of dots obsolete at costa of forewing. Described from Mexico, distributed to Venezuela and Peru.

14. Genus: **Almodes** *Guen.*

Characters intermediate between those of *Ametris* and *Ergavia*, the antenna, legs and to some extent the slender abdomen agreeing with the former, the raised eell-spots, coloration, etc., with the latter. Face not or scarcely protuberant. Palpus rather elongate. Pectinations of the ♂ always long. Early stages unknown.

- terraria*. **A. terraria** *Guen.* (1 i). More variegated (brown, marked with black) than the other species of *Almodes*, the postmedian line of the forewing with a longer and more darkened projection in the middle. Haiti and the Bahamas. — ab. **stellidaria** *Guen.* has the median area strongly darkened. — **rivularia** *Grote* (= *subaustralis* *Hulst*, *pedicellata* *Hulst*) is probably synonymous, but there may be some racial difference. In the absence of material from Florida, GROTE's description may be quoted: "Possibly a modification of the Haitian *terraria*, but quite different from GUENÉE's description. Olive brownish, somewhat pallid; the median lines principally marked on costa by broad, dark shades on forewing above. A median line continuous. A black discal mark and scattered elevated black scale points. Hindwing dentate, concolorous; the discal raised point black and white. Beneath costa dotted with black, with a distinct reddish flush; discal points black. The wings above are crossed by interrupted, faint, dark lines; the hindwing best marked. The veins are indicated on forewing, where the outer line is dotted. The ground colour is more brown than testaceous; there is a sprinkling of black scales." — **squamigera** *Feld.* (1 i) is on an average larger than *terraria* and of a lighter, brighter brown, with the dark markings of the median area standing out more sharply, the postmedian line of both wings with the sinuosities more profound. Colombia and Venezuela; similar examples in parts of Mexico and Guatemala. — **assecoma** *Druce* is of the same bright brown as *squamigera*, but has the proximal area of the forewing weakly marked, the postmedian line of the hindwing still less sinuous, at least in the ♀, than in *terraria*. Yucatan (type), Guatemala and Honduras.
- caletra*. **A. caletra** *Druce* (2 a). Smaller, darker, more greyish and more uniform in appearance than *calvina*, antennal pectinations of the ♂ scarcely so long as in *terraria*. Vera Cruz, Mexico.
- calvina*. **A. calvina** *Druce* (2 a) is rather large, long-winged, the ♂ antenna with the pectinations extremely long, the postmedian line better developed than in *caletra*, bordered outwardly by a noticeable pale line or shade. Vera Cruz, Mexico.

15. Genus: **Ergavia** Walk.

General coloration and scheme of markings as in *Almodes*. Build more robust, face protuberant, antenna of ♂ dentate-eiliate or with short pectinations (only in *subrufa* with the pectinations long), tufts of raised scales at the discocellulars as in *Almodes*, the forewing with an additional (longitudinal) ridge of more or less raised scales at base. Hindtibia with all the spurs placed at or close to the end (except in ♀♀ of *subrufa*, *livaria* and *carinenta*), very irregular in number and length, varying in number from 1 to 2 in the ♂ and from 2 to 4 in the ♀.

A. Antenna of ♂ with pectinations long, of ♀ also well pectinate.

E. subrufa Warr. Distinguishable from all other *Ergavia* by the antenna in both sexes. Resembles *subrufa*. *A. terraria* (1 i) in its most variegated forms, but larger, more robust, with larger cell-spots, the characteristic basal streak of *Ergavia* and a red underside. ♂ hindtibia with 1 spur, ♀ with 3. Jamaica.

B. Antenna of ♂ with pectinations moderate or short, of ♀ not pectinate (only *drucei* extremely shortly so).

E. drucei Schaus (1 i). Rather sharply marked, with a rather strong contrast between the light basal *drucei*. and band-like central area of the hindwing. Pectinations of ♂ moderate. Hindtibia as in *subrufa*. Mexico, British Honduras, N. Venezuela and Trinidad.

E. costimaculata Prout (1 i) is paler, with more blackish markings, antenna of ♂ with shorter pectinations, of ♀ with strong teeth. Rio Madeira. Also a pair from Tarapotos, Peru, in the OBERTHÜR collection. *costimaculata*.

E. obliterata Schaus. Expanse 51 mm. Brown, without the distinct lines; forewing with blackish *obliterata*. cell-spot, dark outer shade and subterminal spots, hindwings with 3 blackish median bands and black subterminal spots. Pectinations shortish-moderate, hindtibia in both sexes with 2 spurs. Peru; ? Bolivia.

E. stigmara Walk. (1 i). Smaller than the other pectinate species. ♂ hindtibia with 2 spurs, ♀ with 4. *stigmara*. Both wings with cell-spot large and blackish, and with darkened median shade. ♀ lighter than ♂. Underside with weak or moderate postmedian line and some distinct subterminal dark spots. Described from the Amazons but widely distributed. Guatemala, Colombia, Venezuela, French Guiana, Bolivia, Argentina.

E. exstantilinea sp. n. (2 a). Rather narrower winged than *stigmara*, paler, the zigzag postmedian *exstantilinea*. line sharply developed, with the anterior angle very acute; underside with this line still more pronounced, the subterminal spots relatively weak. Sapueay, 21 June 1903 (W. FOSTER), type ♂ in Mus. Tring; Central Paraguay (P. GERMAIN), paratype ♂ in Mus. Brit. Structure of *stigmara*, possibly a form thereof.

C. Antenna not pectinate, hindtibia of ♂ with 2 spurs, of ♀ with 4.

E. merops Cram. (1 i). Rather variable in colour, but less so in markings. Abdominal area of hindwing *merops*. with a characteristic irroration of black and pale yellowish scales. — ab. **morbida** nov. (1 i) is much paler and *morbida*. less fleshy or reddish coloured, nearly like the pale parts of *drucei*. — *merops* is widely distributed from Central America to Peru and Brazil.

E. eris Prout. Close to *roseivena* (2 a) but darker, at least beneath, where the postmedian line is well *eris*. developed; cell-tuft of forewing purple-reddish, not black, of hindwing wanting (DC³ above slightly marked with whitish); teeth of postmedian of hindwing weaker than in *roseivena*. Colombia (the type) and British and French Guiana.

E. roseivena Prout (= *calvina* Warr. nec Druce) (2 a). Recognizable by its brightly red-marked veins, *roseivena*. pale underside with darkened apical region of forewing, etc. Antennal teeth in ♂ moderately strong. Hindtibia of ♀ with 4 spurs. East Bolivia (type) and Peru. — **biangulata** Prout is a smaller and darker form, the hind- *biangulata*. wing sometimes with rather stronger and darker raised tuft on DC, its postmedian with less strong teeth in cellules 3 and 2, forewing on the contrary with the projection of the postmedian in cellule 3 sharp. British Guiana; also in a quite similar form from Fonte Boa, Upper Amazon. Examples from W. Venezuela and Colombia are somewhat intermediate in colour, but agree in their size with *biangulata* and have the same shape of postmedian line, particularly on the hindwing. — **diphora** Prout has about the size of *biangulata*, but *diphora*. has a conspicuous raised discocellular tuft on the hind as well as on the forewing; probably a species. Paraguay (type) and Argentina.

E. divecta Warr. (2 a). Build rather more robust than in the two preceding species, coloration darker, *divecta*. postmedian line of hindwing, excepting its angle on 1st radial, much straighter, generally almost straight, raised scaling on discocellular of hindwing whitish. French Guiana (type) to Venezuela and Rio Madeira.

E. benesignata Dogn. Rather smaller and rather darker than *biangulata*, the postmedian line of both *benesignata*. wings formed nearly as in typical *roseivena*, the cell-tuft of the hindwing stronger than in any form of that species. Argentina.

D. Antenna not pectinate, hindtibia of ♂ (unless in *illineata* or *leopoldina*) with 1 spur.

- illineata*. **E. illineata** Warr. founded on a ♀ from Maroni River measuring 52 mm, is compared with *roseivena* (2 a), but is lighter, the veins pale ochreous, not pink, the lines greyer and more indistinct, without pale edging, all arising from costal spots, the first more distally placed than in *roseivena*, the subterminal line bluish white; tufts of raised scales red-brown. Hindtibia of ♀ with 3 spurs.
- leopoldina*. **E. leopoldina** sp. n. (2 a) almost certainly belongs here, but the ♂ is unknown (unless *endocasta* be a ♂-form to it) and the type has lost its hindlegs. Superficially very like weakly marked *liraria*, the postmedian more proximal and less black; areole wanting. Short and rather weak terminal lunules. Underside weakly marked, but with an interrupted dark subterminal shade relatively well developed. Leopoldina, 1900, 1 ♀ (coll. SEITZ).
- endocasta*. **E. endocasta** Prout. Close to *piercei* (2 a), of which I should have supposed it a race but that the antennal teeth of the ♂ are longer, nearly as long as the diameter of the shaft. Rather duller, more confusedly marked, the double postmedian indicated by ill-defined spots; cell-mark thin; distal margin with short black lunules instead of dots. ♀ unknown. San Esteban, N. Venezuela.
- piercei*. **E. piercei** Prout (2 a). This species and the preceding must be very near to *illineata* Warr., and it is possible that one or other may have to sink. *piercei* has the antennal teeth of the ♂ quite short. The coloration is scarcely brighter than in *divecta*, from which it differs in the postmedian line of the hindwing, in its larger size, etc. ♀ unknown. Rio Madeira. Races perhaps occur in French Guiana and Peru.
- burrowsi*. **E. burrowsi** Prout (2 b) was discovered together with *piercei* on the Rio Madeira, but differs greatly in the ♂ genitalia, which have a different gnathos, a shorter, hairy uncus and quite dissimilar penis, the manica strongly spined, the vesica without the 7 strong broad cornuti which characterize that of *piercei*. A lighter and more sharply marked insect, the forewing recalling that of *drucei* (1 i); the sharply black marks on the postmedian of the hindwing are characteristic. ♀ unknown.
- brunnea*. **E. brunnea** Schaus is a smaller, more uniformly brown species, intermediate in shape between *roseivena* (2 a) and an *Almodes*, distal margin of hindwing deeply dentate, its cell-mark white, scarcely raised. Hindtibia of ♀ with 3 spurs. Peru.
- venturii*. **E. venturii** Prout resembles a small *brunnea* and may possibly prove a subspecies. Rather darker and duller; forewing rather narrower, a small areole present (wanting in *brunnea*), the basal streak and cell-tuft reduced, median area more heavily irrorated, postmedian line less acutely angled. Argentina: El Chaco.
- liraria*. **E. liraria** Guen., founded on a ♀ of unknown "patria", but perfectly matched by examples from Brazil, is closely similar to some rather brown forms of *carinenta* with the lines, excepting the principal ones, not very strong, but differs in having a small areole in the forewing. — **athalia** subsp. nov. (2 b) is a rather narrower-winged, much darker form, on an average rather smaller, which appears to be common at Sapucay, Paraguay; subbasal tufts on forewing rather broad. Possibly a distinct species. Type in Mus. Tring. — **torva** subsp. nov. is another form of rather doubtful status. Larger (54—62 mm.), confusingly similar to the brownest, most heavily marked forms of *carinenta* but again with the areole present. Central lines of hindwing much less straight and clear than in that species, some heavy black (slightly raised) scaling beyond the discocellulars. Carabaya, Chanchamayo, Chachapoyas (Peruvian Amazons) and E. Bolivia, the type from Tinguri, Carabaya, 3400 feet, in Mus. Tring.
- carinenta*. **E. carinenta** Cram. (= *carinata* Fb., *carinentaria* Hb., *bogotaria* Walk., *repleta* Walk.) (2 b) cannot be confused with any other species except *liraria*, on which see above for the differentiation. Forewing without areole. Hindtibia of ♂, as also in *liraria*, with a single spur. Widely distributed from Central America to the Amazon region and Bolivia, first described from Surinam.

Tribe Hedylicae.

Remarkably distinct from all other *Geometridae*, probably a separate subfamily or even a family. The slender body in both sexes (with the shape of the abdomen recalling that of some *Rhopalocera*), short antennae, weak and hairy forelegs, short hindlegs, seldom fully spurred, thin scaling and absence of the usual Geometrid markings are among the features which give them their individuality. Added to this, their venation is distinctive: in the forewing the 3rd subcostal arises from near the base of the stalk of the 4th and 5th, or even from the cell; in the hindwing the costal (except in *Hedyle*) is usually remote from the subcostal, connected with it by a longish bar. On the very interesting pupae see *Macrosoma* and *Phellinodes lucivittata*. Exclusively Neotropical.

16. Genus: **Hedyle** Guen.

Antenna in both sexes pectinate. Abdomen extremely slender, elongate. Foretibia with a long hair-pencil. Hindtibia with 2 short spurs.

H. heliconiaria Guen. (= *heliconaria* Walk.) (2 b). Hindtarsus of ♂ with strong triangular swelling on 1st joint, reaching the proximal end thereof. Further distinguishable from the two following by the reduction of the white parts. Venezuela, French Guiana (type), Amazons, Peru, Ecuador; a more white-mixed form (race?) in Costa Rica. *heliconiaria.*

H. semiermis sp. n. (2 b). Size of *heliconiaria*; ♂ hindtarsus with the swelling on 1st joint much smaller, about central; pectinations rather longer. Forewing above and beneath with more white in region of tornus, above with a broad longitudinal subterminal dark mark on 3rd radial. Hindwing with the longitudinal white streak broader and clearer. Mexico, Central America, Venezuela, Amazons, Ecuador and Bolivia, the type from Isthmus of Panama, November—December 1907, in the Tring Museum. *semiermis.*

H. inermis sp. n. is exceedingly similar to *semiermis* (2 b) but slightly larger (at least 39 mm.) and with the ♂ hindtarsus simple, the pectinations scarcely so long. Slightly darker (less brown), with the white costal triangle a little larger, the white suffusion between it and the tornus also strengthened, the dark border of the hindwing broadened. Santa Cruz, Bolivia, 1926 (J. STEINBACH), type in Mus. Tring. Tarapoto, Peru, a pair in Mus. Brit. (ex OBERTHÜR). *inermis.*

H. albipannosa Prout (2 c). Larger and darker, more like a *Phellinodes* in aspect. Pectinations longer. Hindtarsus without a swelling. East Peru (type) and Ecuador. *albipannosa.*

17. Genus: **Lasiopates** Warr.

Differs from *Phellinodes* in having the legs exceptionally long haired. Both wings strongly elongate. Hindwing in ♂ with venation distorted, a vitreous patch in base of cell, beneath with a dark button-like excrescence. Only one species.

L. hyacinthina Warr. (2 c). Recognizable by its shape, purple gloss, oblique whitish postmedian band. Widely distributed but not common: Honduras, Costa Rica, Amazons, N.W. Ecuador (type), S. Peru. *hyacinthina.*

18. Genus: **Macrosoma** Hbn.

Palpus long, with 2nd joint smooth. Foreleg of ♂ enormously elongate. Hindtibia with all spurs. Forewing of ♂ with a large twisted membranous flap from base of costal vein beneath, enclosing a large cavity which opens hindward. Only one species.

M. tipulata Hb. (2 c). Distinguished from the other white *Hedylicae* by the large size, the brown shadings and particularly the irregularly shaped white spot in the cell of the forewing. HÜBNER's type was probably from Para; other known localities are Costa Rica, Panama, Colombia, French Guiana and the Upper Amazons. — Pupa pale-coloured, slender, attached to a leaf by its long cremaster and a central girth, as in that of a butterfly, flattened at base of abdomen, swollen in front of and behind this depression but without the definite humps of *Phellinodes lucivittata*; each segment of abdomen with a small central knob dorsally. *tipulata.*

19. Genus: **Phellinodes** Hb.

This is the central group of the tribe and embraces all the species which have non-pectinate antennae, the legs not exceptionally hairy, never strongly elongate, the hindtibia with terminal spurs only. There are two sections, the first with simple hindwing in the ♂, the second with distortions more or less similar to those of *Lasiopates* ♂.

A. Section *Hyphedyle* Warr. Hindwing of ♂ simple.

Ph. lamellifera Prout is similar to *minutipuncta* ♂ (2 c), or rather darker, but has lamellate antenna and a less sharp angle at the end of the 1st radial of the forewing and lacks the minute white postmedian dots. Fonte-Boa (loc. typ.) and Surinam, the ♀ still unknown. *lamellifera.*

Ph. minutipuncta Prout (2 c). Recognizable by its shape, nearly uniform colouring and (except in an extremely rare aberration) presence of a white postmedian dot behind SC⁵, usually also a still more minute dot before it. In the ♀ the white dots become spots, formed nearly as in *muscerdata* Feld. (2 f). S.E. Peru: La Oroya. Clearly related to *megalophysa*, but with simple ♂ hindwing. *minutipuncta.*

- rubedinaria*. **Ph. rubedinaria** *Walk.* (2 c) is lighter and less uniform than the two preceding species, the 2 black cell-dots of the forewing stronger, the apex of the hindwing almost white. Common from Mexico to Ecuador and the Amazons, besides Cuba, Trinidad and French Guiana; WALKER's type was from Honduras.
- ustrinaria*. **Ph. ustrinaria** *H.-Sch.* (2 c). White with faint brown-grey irroration and strigulation; the only conspicuous marking is the dark postmedian spot on R². Panama, the Guianas and Peru, type from Surinam.
- albida*. **Ph. albida** *Schaus.* (2 d). "Upperside white; on costa at base some black striae. Underneath white, a black spot and striae at base of costa, and minute apical points on forewings; on hindwings some fine striae on costa, and two black points near inner margin. Expanse 33 mm." Brazil: Rio Janeiro and Santa Catharina.
- leucophasiata*. **Ph. leucophasiata** *Th.-Mieg* (= *divisa* *Warr.*) (2 c). A strikingly distinct species and not variable. Ecuador and Peru.
- albimacula*. **Ph. albimacula** *Warr.*, of which only the type is known, resembles *subornata* (2 d) in size, shape and colouring, but has the costal yellowish patch ill-defined and extending (though narrowly) nearly to the base, the white spot roundish, with a short and slender dash projecting from its anterior side. Paramba, W. Ecuador.
- leucoplethes*. **Ph. leucoplethes** *Prout* (2 d). Distal margin entire. Forewing with two white anterior spots, the costal large, and a great part of the forewing posteriorly white; hindwing white with a dark border. E. Ecuador: Rio Pastaza and Intaj.
- subornata*. **Ph. subornata** *Warr.* (2 d) is again readily recognizable by the shape of the white markings. Underside dotted and strigulated with white, the forewing posteriorly to the cell and to M¹ (almost to distal margin) clear white. S.E. Peru: Carabaya.
- desueta*. **Ph. desueta** *sp. n.* (2 d). Size of *subornata*, or scarcely larger, but with the forewing relatively rather longer (distal margin somewhat more oblique). Antennal ciliation rather longer. Forewing more brownish, posteriorly less irrorated with pale scales, beneath without a clear white area; costal patch with its posterior part more ochreous; fringes more mixed with white. Colombia: Pueblo Rico, San Juan, Choco, 5200 feet, September 1909, 3 ♂♂ and 1 ♀ in coll. JOICEY; San Antonio, 1 ♂ in coll. PROUT. Ecuador: Balzapamba, a ♂ in coll. Brit. Mus.
- paularia*. **Ph. paularia** *Schaus* (2 c). Hindwing rather whiter than in *biapicata*, forewing with the apical patch brighter and with some similarly-coloured suffusion in the region of the tornus. Matto Grosso to Castro, Parana.
- biapicata*. **Ph. biapicata** *Prout* (2 d). Recognizable from our figure. From its nearest relative, *paularia*, differentiable as noted above and by having a moderately distinct antemedian line on the forewing and stronger dark borders to the hindwing. Peru: Rio Ucayali.
- intermedia*. **Ph. intermedia** *Dogn.* (= *gratiosa* *Schaus*). Apical patch darker and more sharply defined, distal margin of forewing more oblique posteriorly, most of the wing coloured more nearly as in *Hedyle*. Hindwing with elongate white central streak from base, broadening and rounding distally, not reaching termen. Costa Rica and Colombia.
- coscoja*. **Ph. coscoja** *Dogn.* (2 e) resembles the first few species of the following section in the form of the apical patch, but the forewing is relatively shorter and the ♂ hindwing is without specialisation. Colombia to Bolivia, the type from Ecuador.
- B. Section *Phellinodes* *Guen.* Hindwing of ♂ with a diaphanous fovea in the cell, often with the venation more or less distorted.
- albistria*. **Ph. albistria** *Prout*. Size of *coscoja* (2 e); apical patch as in *bahiata* (2 e) but with its proximal white edging forming more distinct dots, relatively larger than those of *uniformis* (2 e), and with an oblique white streak from behind this patch to middle of costa; some dark clouding in the cell beyond its middle. S.E. and E. Peru.
- bahiata*. **Ph. bahiata** *Feld.* (2 c). Rather larger and more reddish; distinguished by the moderate or large black mark on the discocellulars. Sexes similar. Distributed from Bahia to the Guianas, Ecuador and Peru.
- uniformis*. **Ph. uniformis** *Warr.* (2 e). Exceedingly like a small dull-coloured ♂-form of *satellitata*, but evidently a valid species. See the differentiations below. The ♀ is not known, unless *interrupta* may represent it. ♂ common from Colombia to Bolivia, described from E. Ecuador. A ♂ from Itatiaya (Dr. SEITZ) does not appear to differ.
- satellitata*. **Ph. satellitata** *Guen.* (♂ = *praccostalis* *Dogn.*) (2-d). A rather large species, with pronounced sexual dimorphism. ♂ like a larger, rather darker, browner *uniformis*, apical patch browner (at least distally), a very ill-defined, slightly paler postmedian spot behind the 2nd median of the forewing and one between the radials of the hindwing. ♀ much brighter than ♂, with large triangular white spot proximally to the apical patch.

Widely distributed but not common; Colombia, Peru and (according to GUENÉE) Brazil. — *zapotensis* *subsp. zapotensis*. *nov.* differs in that the white spot of the ♀ is proximally broadened, not pointed. Guatemala: San Geronimo, Zapote (CHAMPION), 2 ♂♂, 2 ♀♀ in the "Biologia" collection.

Ph. stabilinota *sp. n.* (2 f). ♂ forewing rather narrower than in *uniformis*, less contrasted, the ground-colour darker, the apical patch scarcely so dark, the white dots which proximally border it very small; otherwise exceedingly similar. ♀ with the excavation behind the apex much shallower than in that of *satellitata* (2 d), apical patch much less bright, the orientation of the white spot different, its posterior side being parallel with the 2nd radial, its anterior oblique, the proximal angle of the triangle therefore in cellule 5, not in cellule 6, anterior dot as in *satellitata*, no white dot in cellule 4. Both sexes without the pronounced dark antemedian streak from costa of forewing. Hindwing of ♂ with the fovea in base of cell enlarged. Fonte Boa (S. M. KLAGES), 5 ♂♂, 2 ♀♀ in Mus. Tring, including the type ♂. Maroni River, French Guiana, 1 ♂ in Mus. Tring, 1 ♀ in Mus. PROUT.

Ph. interrupta Warr. Only known to me in the ♀, which is fully as large as the largest *uniformis* (2 c); paler, with the apical region little darkened; the white spot larger than in *satellitata* (2 d), preceded at the costal margin by a more strongly whitish patch; underside much more mixed with white than in *uniformis* and its closest allies. Excavation behind apex scarcely so deep as even in the male of *satellitata*. S. Javier, Rio Cachabi, Ecuador; also Colombia. — **megalophysa** Warr. is a small form apparently somewhat variable. In the name-type the white spot is subquadrate and the black cell-spot rather large, well isolated. — In ab. **parornata** Dogn. (2 g) the white spot is triangular, with rather extended dark shading proximally, which reaches the (sometimes smaller) cell-spot. French Guiana.

Ph. costilunata Prout. 44 mm. Coloration of *interrupta*; pale costal patch still more sharply defined, beneath more buff; the principal white mark broken into a small spot in cellule 6 and a longer one (longitudinally) in cellule 5. Ecuador.

Ph. muscerdata Feld. (2 f). White spots nearly as in *costilunata*, costal patch undeveloped; colouring above and beneath browner, with rather strong, though ill-defined, dark clouding on the forewing distally. Shape slightly different from that of the preceding group, forewing more produced at apex than at 1st radial. Amazons (type), Guianas, Ecuador and Peru.

Ph. cascaria Schaus (2 e). This species and the 4 which follow are characterized by having a white costal triangle (as in *Hedyle*) and generally an elongate blackish mark on the discocellulars of the forewing, often (as in *cascaria*) more or less interrupted in the middle. The large clear apical patch of the forewing and the rather uniform hindwing (with a slight wash of brown near the apex) distinguish the present species. Described from Jalapa, Mexico and known from Costa Rica, but commoner in Venezuela.

Ph. albifascia Warr. Rather larger and broader-winged, darker, the cell-mark strong and continuous, the white costal triangle dark-irrorated, a broad white, dark-dusted band obliquely from posterior half of distal margin to costa just proximal to the triangle. Carabaya, S.E. Peru. — **expedita** *subsp. nov.* (2 f) has the costal triangle reduced and virtually confluent with the white band, which moreover contains two conspicuous black spots close to the distal margin. Macas, Ecuador, a ♂ in coll. SEITZ.

Ph. hedyllaria Warr. (2 f). Costal triangle long but not deep, a smaller whitish costal patch developed more proximally; the whitish posterior patch at distal margin contains 2 characteristic blackish spots. The type, like most of the known specimens, was probably from the Amazons; a few are also known from Colombia, Peru, Paraguay and Brazil.

Ph. zikani *sp. n.* (2 g). 46—53 mm. Closely similar to *conifera* though larger and more heavily black-marked; hindwing in both sexes with distal margin regularly rounded, as in *hedyllaria*; costal triangle in the ♂ shaped about as in *hedyllaria*, but with some dark irroration, in the ♀ almost reaching the 2nd radial mostly pure white. Itatiaya, May 1924 and January 1927 (G. J. ZIKAN), type and paratype in coll. SEITZ. Alto da Serra, São Paulo, February 1923, 6 ♂♂ and 1 ♀ in Mus. Tring (R. SPITZ), 2 ♂♂ in Mus. Brit. (E. D. JONES); also, without locality label, 1 ♀ in coll. SEITZ.

Ph. conifera Warr. (2 g). Recognizable by the shape of the white costal triangle (a little longer transversely and purer white in the ♀ than in the ♂) and by the highly specialised ♂ hindwing, with concavity in distal margin, cell much narrowed at its end, the foveal contortions strong. Surinam (type), French Guiana, Central America, Amazons, Colombia and Peru, nowhere common. — **gorgonensis** *subsp. nov.* has the white costal spot irrorated and strigulated in its anterior part (about to the 3rd subcostal) above and beneath. Gorgona Island, off W. Colombia (C. L. COLLENETTE), 2 ♀♀ in Mus. Brit., from the "St. George Expedition".

Ph. latiplex Dogn. is possibly a form of the preceding, with the costal triangle greatly reduced, indeed only indicated by a flattened mark in front of the 5th subcostal; but as the shape and distorted venation of the hindwing seem slightly more extreme, I conserve it as a species. I have before me 1 ♂ from Fonte Boa

and 1 from Taperinha, near Santarem, fully agreeing with DOGNIN's description of his type from St.-Laurent du Maroni.

- lucivittata.* **Ph. lucivittata** Walk. (σ = *absentimacula* Warr.) (2 h). The largest species, the σ almost unmarked except for the longitudinal whitish streaks, the ♀ in addition with a rather large white subapical spot. Amazons (loc. typ.), Guianas, Colombia to E. Peru. A pupa, from which a σ was bred at Para by Rev. A. M. Moss, is extraordinarily like that of a butterfly (distantly resembling an *Adelpha* pupa), with a long cremastral plate, attached to a leaf by a silken pad, a single thread as girth at base of abdomen, between two large, irregular composite dorsal humps, thoracic and abdominal; surface rather rugose, general coloration light brown.
- klagesi.* **Ph. klagesi** Prout. 50 mm. An obscurely marked species, connecting *hedylaria* (2 f) with *obstructa*. Forewing shaped nearly as in *hedylaria* σ , or slightly more weakly bent behind the 1st radial, similar markings and colour-nuances traceable, but much weakened, no subterminal dark spot between the medians. Hindwing very similar to that of *obstructa*, but slightly more variegated beneath. Fonte Boa, 1 σ .
- obstructa.* **Ph. obstructa** Warr. is also only known from the type σ , distinguishable from the closely similar *nigrimacula* (2 g) by the presence of two distinct white costal marks, shaped somewhat as in *latiplex*, the outer one the better developed, particularly clear on the underside. Pambilar, Ecuador.
- cellulata.* **Ph. cellulata** Dogn. is near *obstructa*, but with a lighter, semihyaline area in each cell, the whitish costal markings suppressed on the underside, where on the contrary the distal margins are whitish; cell-spots of forewing large. Ecuador.
- nigrimacula.* **Ph. nigrimacula** Warr. (2 h). White costal marks vestigial above, absent beneath; the black markings strong, characteristic, particularly the obliquely elongate one in front of the cell-spot. Bolivia (the type), Carabaya and the Amazons.
- leptosiata.* **Ph. leptosiata** Feld. (2 g) differs from all the other species in having the distal margin straight at the end of the 1st radial. The only noticeable marking is the white apical suffusion. Amazons (type), ? Venezuela, Dutch and French Guiana.

20. Genus: **Venodes** Guen.

Near to *Phellinodes* section *Hypedyle*, but with the σ antenna pectinate. Forewing with distal margin not bent at R^1 , 3rd subcostal arising from the cell. Only one species.

- napiaria.* **V. napiaria** Guen. (2 h). A simple yellowish-white species, the forewing with darkened veins. Only known from S.E. Brazil.

Subfamilie: **Hemitheinae.**

This beautiful subfamily, colloquially known in North America as "the Greens", is well represented in the New World, especially in parts of South America, but does not extend into the Arctic regions nor — with the exception of one rather isolated Chilean species — into Chili and Patagonia; about 35° S. lat. seems to represent the limit of its southward range. The more archaic forms, and indeed the whole of groups I, II and III as classified in the "Genera Insectorum", are entirely wanting and group IV is only represented by the genus *Rhodochlora*. There is therefore much less structural variation exhibited than in the Old World and the provisional classification which is at present adopted places nearly onehalf of them in two great genera, *Racheospila* and *Oospila*, which represent, with their outliers, two principal branches of group V.

Apart from their almost invariably green colouring, the *Hemitheinae* may be known by the following structural characters. Face smooth. Antenna in the σ very generally and in the ♀ not uncommonly bipectinate. Both wings with the cells generally short, 2nd radial fully developed, arising considerably before the middle of the discocellulars. Forewing with the 2nd—5th subcostals stalked, sometimes also the 1st, never with a true areole. Hindwing with the humeral angle highly developed, generally accompanied by a weakening of the frenulum, which in many ♀♀ and the most specialized $\sigma\sigma$ disappears or becomes non-functional. The larvae, so far as known, belong largely to the *Comibaena* group, having strong processes to which, in many cases, are attached withered fragments of the foodplant, affording them a remarkable protective guise. The pupae are generally light-coloured, seldom if ever subterranean.

In the genus *Rhodochlora* the humeral expansion of the hindwing has not advanced very far and the frenulum is developed in both sexes. In the group from *Racheospila* to *Xanthoxena* the expansion is more pronounced, the σ frenulum begins to shorten or weaken and that of the ♀ tends to disappear. In the remaining genera the frenulum is lost in both sexes,

1. Genus: **Rhodochlora** Warr.

This fine genus contains the largest Neotropical *Hemithaina*, characterized by the discolorous, sub-diaphanous area at the base of the hindwing. ♂ with palpus moderate, antenna pectinate; ♀ with palpus long, antenna simple. There are two groups, according to the ♂ leg-structure.

A. Hindtibia of ♂ with hair-pencil and 4 spurs.

Rh. roseipalpis Feld. (5 a), from "Venezuela", is unfortunately a ♀ in poor condition and is not quite certainly conspecific with the forms which are here associated with it, but this seems highly probable. We reproduce FELDER's moderately good figure. It should be added that the forewing shows traces of a dark-red cell-dot above and beneath, which would doubtless be conspicuous in a perfect specimen. — ab. (♀) **briceno** nov., from Merida, has the red postmedian markings reduced, the markings at the fold of the forewing narrowed, the subbasal band of the hindwing suffused with grey. A pair in Mus. Tring, collected by BRICENO. Possibly a separate species. *roseipalpis* apparently occurs also in Colombia, Ecuador and E. Peru.

Rh. endognoma Prout (3 a) differs in the presence of an angular red antemedian mark on the forewing, set on a primrose-yellow patch. Hindwing with the grey proximal band heavy. Perhaps a race. Carabaya, S.E. Peru.

Rh. albipuncta Warr. has about the size and shape of *roseipalpis* (5 a), but the base of the costal margin of the forewing is red, the lunules of the postmedian line are not so deep, the spot near the tornus is whiter, the base of hindwing perhaps more greenish, the narrow red band which bounds it not reaching end of cell. Cushi, Huanuco, E. Peru, only the type known. Most of the specimens which have been referred here seem to be *roseipalpis* forms.

Rh. tornistriga is characterized by the purple-red terminal streaks and red fringes, on the forewing behind the 2nd median, on the hindwing before the 1st radial. It exists in several forms all Colombian. — **achroma** form. nov. is of a rather deeper green, base of costa of forewing not red, antemedian mark slight, subternal spot strong, whitish to whitish buff; band of hindwing narrow, especially anteriorly, no purple cell-mark. San Antonio, 3 ♂♂ in coll. JOICEY. Perhaps a separate species. — **tornistriga** Prout (3 a) is rather paler green, the hindwing with a red cell-spot or dot. In the name-typical form, from Monte Tolima, 2700 to 3200 m, the base of the costa is not red, the antemedian band sometimes better developed than in *achroma*, the subbasal band of the hindwing sometimes broad, in an aberration or cognate form from El Congo confluent with the red cell-spot. — **libanensis** form. nov., from Sierra del Libane, is rather sharply dimorphic. Base of costa of forewing red, antemedian slight or rather slight; base of hindwing green. In the name-typical form, represented by 10 ♂♂, this green base is followed by a buff area of about its own width, the subternal spot is buff to whitish. — ab. **viridescens** nov. has the base of the hindwing green as far as the red band, the subternal spot green, with little purple beyond it, 7 ♂♂. The types of both forms of *libanensis* are in the JOICEY collection.

Rh. basicostalis Dogn. (3 b). Relatively somewhat shorter-winged than either of the preceding species; hindwing not strongly bent in middle; its base green, only narrowly separated by buff from the red band, which is likewise narrow in most ♂♂. Subternal whitish spot in the ♂ narrow, or generally wanting, but in the ♀ often well developed, so that this sex becomes confusingly like *roseipalpis* (5 a). Ecuador to S.E. Peru. — **unicolor** Warr., chiefly from higher altitudes in Carabaya (9000 feet and upwards) has the face brighter red, the red band of the hindwing broader, the postmedian of the forewing forming an ample lunule between the 2nd median and submedian but never, so far as we know, filled in with any whitish colouring in the ♂♂.

Rh. brunneipalpis Warr. (3 a) has the postmedian markings of the forewing rather more distally placed than in any of the preceding, the proximal band of the hindwing grey, nearly as in *endognoma* but of more uniform breadth, the area proximal to it yellowish. The palpus is perhaps slightly darker red than in the preceding, but scarcely justifies the name. WARREN's type, from Rio Demerara, was a weakly marked ♀ in poor condition; a British Guiana ♀ in the British Museum agrees with it. We figure a ♂ from Maroni River, which — together with those from Colombia — differs little from some forms of *minor*, though the brown apical spot on the hindwing beneath remains strong. — **minor** Warr., common in Carabaya, S.E. Peru, is a race, perhaps eventually synonym, the ♂ with the antemedian reddish mark on the forewing generally widened, the apical spot of the hindwing beneath reduced or obsolescent, the ♀ strongly and brightly marked.

Rh. rufaria Warr. (3 a) is perhaps another form of *brunneipalpis*, but has some red suffusion round the cell-dot of the forewing, a bright red spot at tornus, with a subterminal reddish half-band (usually broken into spots) running forward from it; hindwing with reddish central suffusion, anteriorly extended to the apical spot, which is well developed beneath. Founded on a ♂ from La Union, Carabaya, which was taken with *b. minor*; known chiefly from the Amazons (Para to Fonte Boa), unattended by *minor*.

- mathani*. **Rh. mathani** *sp. n.* Very similar to *rufaria*, (3 a) of which I should have supposed it a form, but that the hindwing is markedly bent, about as in *endognoma*. Forewing with the markings darker, the antemedian rather broad, accompanied proximally by a patch of ochreous suffusion, the subterminal strong, recalling that of *trifasciata*, but more proximal. Hindwing with the central suffusion less reddish and not extended outward anteriorly, altogether more as the hindwing of *minor*. Ecuador: Balzapamba, November 1893 to February 1894 (M. de Mathan), 1 ♂ ex coll. OBERTHÜR.
- niepelti*. **Rh. niepelti** *sp. n.* (3 a). 42—46 mm. Very distinct in the sinuous distal margin of the forewing, extensive clay-coloured suffusions, strong grey bands and other details. Terminal joint of palpus not long. Forewing with 1st subcostal free (type) or anastomosing with costal (paratype). Underside whitish, on forewing with green suffusion in cell and as far as the postmedian band, on both wings with diffuse green postmedian and fainter subterminal, forewing with cell-dot, hindwing with some red-brown sealing close to apex. West Colombia: Rio Mieay, February—April 1928, 2 ♂♂ in coll. JOICEY, received through Mr. W. NIEPELT.
- ustimargo*. **Rh. ustimargo** *Warr.* differs from *roseipalpis* (5 a) in having a large dark livid-brown patch occupying nearly the entire distal area of the forewing from the radials to the anal angle and a small apical patch on the hindwing above as well as beneath. Huaneabamba, Cerro de Pasco, only the type known.
- rothschildi*. **Rh. rothschildi** *Warr.* (3 a). Easy to recognize by its large size and copious markings. Chiriqui, Panama, apparently not variable.
- gaujoniararia*. **Rh. gaujoniararia** *Dogn.* Very distinct in its blackish face and palpus, sombre tone, and bright rose-colour of the patch at anal angle of forewing. Forewing with some rosy spots at base in place of the antemedian line, two yellow dots instead of the posterior subterminal spot. Hindwing rounded. Ecuador: Loja.
- B. Hindtibia of ♂ without hair-pencil and with proximal spurs obsolete.
- exquisita*. **Rh. exquisita** *Warr.* 40 mm. Different from all the others species in shape, the forewing being sub-falcate. Markings somewhat as in *rufaria* (3 a); antemedian line of forewing brighter red, incurved between the two folds, tornal spot larger and brighter, the markings in front of it more blackish, continued to 1st radial; hindwing with bright red apical area, a narrow red band immediately outside the blackish antemedian one, the dentate red postmedian line more distally placed than in the allies. Carabaya, S.E. Peru, very rare.
- trifasciata*. **Rh. trifasciata** *Warr.* Shape of *rothschildi* (3 a) but much smaller (49 mm.). Abdomen green. Forewing similarly marked to that of *rothschildi* but with costa red at base, antemedian line shorter, more acutely angled, postmedian less acutely dentate, its posterior yellow patch smaller (about as in *brunneipalpis* [3 a]). Hindwing with the subbasal grey band broadened, containing a black discocellular lunule, two characteristic purple bands, the postmedian sinuous, thickened about the fold, the subterminal parallel with termen, tapering at both ends, not reaching abdominal margin. Carabaya, Agualani: described from a single ♀.

2. Genus: **Nemoria** *Hb.*

A group of species from North America, probably not entirely homogeneous nor satisfactorily classified, which has hitherto been kept separate from *Racheospila* on the ground of the less elongate ♀ palpus, especially as regards the terminal joint, which is often quite small in both sexes. As the relatively few known larvae suggest possible groupings which would be more fundamental, it would be premature to merge them, or to attempt any essential re-classification in the present state of our knowledge.

- capys*. **N. (?) capys** *Druce* (5 a) is unknown to me and I can add nothing essential to what is shown by the figure. Possibly related to *Racheospila mustela*, in which case its transference to the present genus was not justified. Founded on a ♂ from Las Vigas, Mexico.
- bistriaria*. **N. bistriaria** *Hb.* (= *bifilata* *Walk.*) (5 a). This species and the following may be distinguished from all the rest by their red-brown coloration. 3rd joint of ♀ palpus not very short. HÜBNER's type was from Georgia and the range, so far as I am aware, is not a wide one.
- brunnearia*. **N. brunnearia** *Pack.* Closely similar to *bistriaria* (5 a), of which it was formerly believed to be a synonym. Mc. DUNNOUGH, however, has pointed out that it is rather smaller and has an interrupted red terminal line and slightly chequered fringe, which are wanting in HÜBNER's species. Described from W. Virginia, Central Missouri and Texas, but reaches Philadelphia, where it is recorded that fresh specimens show a decided tinge of green, overlaid with reddish scales. I suspect also that records of "*bistriaria*" from New York State and from Kamloops B. C. belong here. The larva is described as short and thick, with large triangular lateral flaps, somewhat reminiscent of those of *Anisozyga* and some other Old-World genera. On *Juglans nigra*.
- mimosaria*. **N. mimosaria** *Guen.* (= *tractaria* *Walk.*, *venustus* *Walsh*, *coniferaria* *Pack.*) (5 a) is one of the best known species, widely distributed in eastern America from Canada to Florida. Face reddish. Terminal joint

of ♀ palpus short. — ab. **approximaria** Pack. has the lines more approximated. — ab. **latiaria** Pack. lacks the proximal line of the hindwing. — Larva on oak, dead-leaf brown, its ragged appearance harmonizing well with the mutilated and partly withered leaves on which it rests. Head roughened, bilobed, the lobes slightly pointed; body granulated; abdomen with lateral processes on the first 5 abdominals, the first and last small, the middle 3 large, furcate, with the anterior limb the longer. The pupa hibernates.

N. rubrifrontaria Pack. (= *paekardaria* Grote) (3 d) is closely related to *mimosaria* (5 a), the ♀ palpus at least as short, but has a reddish line on the vertex, some red admixture on the abdomen and on the fringes, etc. Eastern United States, fairly common. Recorded doubtfully from Utah by PEARSALL. The larva is green, with small, bilobed, retractile head, rather small thoracic segments, abdomen with compressed lateral appendages turned outwards and upwards, inclined considerably forwards and armed at the tip with 2 elliptical warts; these processes reach their maximum development on the 2nd segment and decrease to the 5th, and are reddish towards the end; segment 7 with subdorsal horns. Pupa grass-green, densely dotted with dark green; dorsal stripe black.

N. albilineata Cassino (3 d). Wings slightly less broad than in the two preceding, more strongly strigulated with white, the white lines broader, the white costal edge becoming rosy well before apex, the white fringes slightly flecked with pink opposite some of the veins. Abdomen from the 3rd tergite becoming reddish with whitish spots. Alpine, Texas.

N. pistaciaria Pack. (= *unistrigata* Gmpbg.) (3 e). Brighter green, with very fine but dense white irroration, only the 2nd line developed. Both wings with a small cell-dot. Face bright red. Abdomen without dorsal spots. California and the Rocky Mountains.

N. mutaticolor Prout is of a much bluer green, the cell-dots wanting, the line weak, the costal edge of the forewing not (as in *pistaciaria*) red beneath. Mexico: Sierra Madre, Tepic.

N. delicataria Dyar (4 i). Slightly deeper green than *pistaciaria*, but not bluish, as in *mutaticolor*. Cell-dots wanting or faintly indicated in green. Very distinct in the bright rose-coloured fringes; parts of costal edge of forewing likewise pink. California.

N. strigataria Grossb. Rather large, especially the ♀. Pea-green, at least as profusely strigulated with white as in *albilineata* but with the lines indistinct; cell-dots present, though vague; termen and fringe much as in *albilineata*. Abdomen above uniform green, or only with white lines at posterior end of segments. Arizona.

N. arizonaria Grote (3 b) is a more delicate, more whitish green species, with bright rosy costal edge and with the abdomen predominantly reddened above, dark-mixed. Arizona.

N. olivearia Cassino is unknown to me, but I gather from the description that it is similar to the preceding, except that the red abdomen bears 3 white spots, the single line (the postmedian) is developed into a broader band, on the forewing running from $\frac{4}{5}$ costa to near tornus, on the hindwing at $\frac{3}{4}$, parallel with distal margin, and the dark red terminal line, though delicate, is less rudimentary. Arizona: Paradise, a pair.

N. latirosaria Pearsall is another pale-green, semihyaline species, but more uniform. Wings relatively ample. Lines pale, on forewing two, on hindwing one; cell-marks linear, white, not distinct, that of the hindwing as long as the cell-end, both larger and more distinct beneath; costa of forewing above and beneath broadly rose-pink throughout, this colour at the base extending across the wing to hindmargin. Thorax and anterior half of abdomen above likewise rose-pink. Utah: Beaver Valley.

N. zygataria Hulst is unknown to me. "28 mm. Head ochreous in front, white on vertex. Wings, body and anterior part of abdomen deep peagreen. Costa narrowly white. Fringes green. Lines white, very like *mimosaria* (5 a), 2 on each wing. Beneath all wings lighter green." Texas.

N. oregonensis Cassino is very distinct in having the postmedian line of the forewing very little beyond the dark-green cell-dot, parallel with the termen and reaching the hindmargin only about 1 mm from the antemedian, while on the hindwing the two meet at costa so as to form a kind of eurved V. Possibly, however, it will prove to be an extraordinary aberration of one of the adjacent species. 1st and 3rd tergites of abdomen each with a red, white-centred ring. Forewing with costal margin white, delicately tinged with red at base and apex. Fringes white. Oregon: Corvallis, 1 ♂.

N. darwiniata Dyar (3 c) somewhat resembles a large *rubrifrontaria* (3 d) with white, red-margined dorsal spots on segments 1, 3 and 4 of the abdomen. The very small red cell-dots are not always present. The fringe generally shows some slight pink marks at the ends of the veins. Founded on a series from Kootenai district, British Columbia. — **californica** (Tayl., MS.) *subsp. nov.* has larger cell-dots, suggesting a transition to the following species. San Diego, not rare, type in coll. Tring Mus. DYAR obtained eggs from Kaslo and reared

the larvae on willow. It is clearly related to the larva of *rubrifrontaria*, but brown, not green; from the 2nd instar onward to the 5th and last, the head is rounded bilobed, the body flattened, with "wing-shaped, double pointed projections on the sides of joint 5 to 9", those on 6 to 8 becoming relatively stronger in the later stages, bent upward.

- punctularia.* **N. punctularia** *Barnes & Mc. D.* (3 e) differs from *darwiniata* in its large purple-brown cell-dots and in the abdominal maculation; purplish spots with small white centre replace the narrowly red-ringed white spots, and the 2nd segment is brown, not green. California.
- junctolinearia.* **N. junctolinearia** *Graef* (3 b) is unmistakable on account of the very peculiar form of the lines of the hindwing which meet behind the middle instead of continuing to the hindmargin. Western States, described from Colorado.
- hudsonaria.* **N. hudsonaria** *Tayl.* was at first considered by its author "to represent *mimosaria* (5 a) in the west", but we have given it the position which he assigned later. Face rose-pink, less white at lower edge than in *mimosaria*. Abdomen above greenish anteriorly, whitish posteriorly, segments 1 to 3 with white spots. Wings bright green, with both lines developed; postmedian on forewing straight, rather more oblique than termen, not quite reaching costa, on hindwing more proximal than usual, strongly incurved behind median vein as if to run baseward, but disappearing before crossing the 2nd median. Alberta.
- unilinearia.* **N. unilinearia** *Tayl.* is near *hudsonaria* but a trifle larger (approaching the size of *darwiniata* [3 c]), the antemedian line obsolete, the postmedian more distally placed, so that if continued to the hindmargin on the hindwing it would reach the middle, not the base. British Columbia: Kaslo (type) and Victoria.
- splendidaria.* **N. splendidaria** *Grossb.* is a beautiful and very distinct species, characterized especially by the course of the antemedian line of the forewing, which is extremely oblique inward, reaching the hindmargin near base. Forewing apple-green, costal margin rather broadly flesh-tinged, terminal line deep red, fringes pink distally, the white lines broad. Hindwing paler and more weakly marked, the lines somewhat as in *oregonensis*. Arizona: Palmerlee.
- viridicaria.* **N. viridicaria** *Hulst* likewise has the hindwing more whitish green than the forewing. No red markings. Forewing pea-green, somewhat striated with white, costal edge and fringe white; lines strong, straight, the antemedian from $\frac{1}{4}$ costa, forming with the wing-margins an equilateral triangle, the postmedian from $\frac{3}{4}$ costa, parallel with termen. Hindwing greenest between the lines; antemedian rounded, at costa near the base, postmedian broader, not sharply defined distally. Colorado. — **albaria** *Grote*, from Arizona, is a still paler form, the hindwing white, thinly scaled, with only a slight tinge of green.
- pulcherrima.* **N. pulcherrima** *Barnes & Mc. D.* (= *naidaria* *Swett*) (3 e) is a rather delicately built species, somewhat erratic in the structure of the hindleg, which is not dilated and has the proximal spurs closely approximated to the terminal. Further distinguished from the species with similar forewing (*delicata*, etc.) by the whitish hindwing. California.
- intensaria.* **N. intensaria** *Pearsall* is said to be nearest to *viridicaria* but with the abdomen ornamented dorsally with white, red-edged spots, that of the 1st segment large and triangular, others on the 3rd, 4th and 5th segments decreasing in size. Wings darker sea-green than in the other *Nemoria*, with white strigulation; forewing costally and hindwing anally somewhat produced; costal edge of forewing salmon-pink; lines strong, on forewing at $\frac{1}{3}$ and $\frac{2}{3}$. Utah: Eureka.
- caerulescens.* **N. caerulescens** *Prout* (3 b) is a small species (23 mm), of a bright blue-green, comparable in shape and markings to *albilineata* (3 d), but with the hindwing slightly paler than the forewing (especially at base), costally whitish, postmedian line broader, the white spot of the 1st abdominal tergite followed by 2 or 3 smaller whitish spots, without any reddish patch. New Mexico.
- aemularia.* **N. aemularia** *Barnes & Mc. D.* is not a typical *Nemoria* as the ♀ palpus is longer, more as in *Racheospila*. Placed here, however, because "it appears to be otherwise obviously related to *viridicaria* and *caerulescens*" (3 b). Abdomen above basally green, the rest whitish, with a reddish brown dorsal interrupted line (♂) or broad band (♀). Wings pale green with strong cream-whitish striations, antemedian line faint, postmedian broad, almost parallel with distal margin. Size of *caerulescens* or scarcely larger. Arizona.

3. Genus: **Racheospila** *Guen.*

Palpus variable, in the ♀ longer than in the ♂ and with the 3rd joint more or less elongate. Antenna pectinate in the ♂. Hindtibia with 4 spurs, in the ♂ nearly always dilated, with hair-pencil and terminal process. Forewing generally smooth-margined, 1st subcostal from cell, 1st median from cell or connate. Hindwing rounded or bluntly angled, costal vein near base approximated to subcostal or anastomosing slightly, 2nd subcostal stalked, 1st median separate to stalked.

Larva, so far as yet known, of the *Comibaena* type (see the characterization of the subfamily).

Our structural groupings are not in all cases absolute, but will be serviceable in helping to locate the species.

This extensive genus is exclusively American — Canada to Argentina — chiefly Neotropical.

A. Antennal pectinations in the ♂ nearly always short, costal vein of hind wing not anastomosing with subcostal.

lixaria-group.

Forewing with termen gently curved. Hindwing more or less bent in middle, 1st median (except in *paurocaula* and *anchistropa*) well stalked. Abdomen with white, generally red-encircled dorsal spots (only in *haematospila* with the spots entirely red).

R. glaucomarginaria *Barnes & Mc. D.* (3 d). Distinguished by the large abdominal spots, absence of red terminal line and of red cell-dots; hindwing with a characteristic white dash on the discocellulars. Fringes whitish ochreous, weakly spotted with pink. California, local; common on Mount Lowe in June. *glaucomarginaria.*

R. lixaria *Guen.* (= *inclusaria* *Walk.*). GUENÉE's type is said to be in bad condition and the synonymy *lixaria* is not quite certain. WALKER's *inclusaria*, described from Florida, but reaching Tennessee, has the abdomen nearly as in *glaucomarginaria* (3 d), the wings smoother green, the postmedian line fine, denticulate, the cell-dots present (brown) and a terminal red line, interrupted by white dots at the veins. A rather small species. — **toxeres** *subsp. nov.* (3 c), which has always been treated as identical with *lixaria*, has the antenna less white, the termen of the hindwing bent in the middle, an antemedian line present on both wings, the cell-dots less strong, beneath (at least on the hindwing) obsolete. Expanse 27—32 mm. Not rare in Costa Rica and I believe elsewhere in Central America, the type from Juan Vinas in Mus. Tring. Also 1 ♂ from Jamaica. *toxeres.*

R. cosmata *Prout* (= *decorata* *Warr., praeocc.*). Very similar to *toxeres* (3 c), but of a slightly more bluish green, abdomen above more reddish, with additional whitish spots, though smaller than the principal 3, cell-dots minute, postmedian line of forewing almost straight, of hindwing more sinuous, fully as strongly curved behind middle as in *toxeres*. Mexico. — **peruviana** *Prout* (3 d) from E. Peru to E. Bolivia, is still nearer to *toxeres* in appearance, in that the reddish cell-dots are not reduced, at least on the forewing. Face more uniformly red than in *cosmata*, where it has distinct white spots at the corners. Abdomen above retaining some green colouring at base. *cosmata.*

R. thymele *sp. n.* 29 mm. Differs from the preceding in short antennal pectinations (little longer than diameter of shaft), face less bright red and with a narrow green bar across upper edge, wings slightly more yellowish green, forewing with cell-dot sharper, lines extremely fine, less rigid, the postmedian of the hindwing rather less bent. Costa Rica: Orosi, 1200 m (FASSEL), 2 ♂♂. Type in coll. L. B. PROUT. *thymele.*

R. sigillaria *Guen.* (= *degener* *Prout*) (3 b) is readily distinguished by its much smaller size, more slender but more black-mixed terminal line, obliquely placed and anteriorly obsolete postmedian line of the forewing and absence of a red line on the crown. Montevideo (GUENÉE). La Soledad, Entre Rios, Argentina, a good series bred by Miss E. A. BRITTEN. — The larvae are blackish, or variegated with red-brown or orange-brown, and bear pronounced lateral processes, those of the 2nd, 3rd and 4th abdominal somites obliquely erect, pyramidal and attaining to a great size, that of the 5th somite less large, but still prominent; evidently related to those of *Nemoria*. Pupa rugose, light drab, with fuscous dorsal lines, the wing-veins conspicuous, dotted with fuscous. *sigillaria.*

R. modesta *Dogn.* is larger and more weakly marked than *nympharia* (3 c). Head fulvous, not rosy as in *inclusaria* (*lixaria*), the costa of the forewing fulvous, not white, the fringes white. Jalapa, Mexico, 1 ♂. *modesta.*

R. nympharia *Schaus* (3 c). Larger than *lixaria*, the face brown, less reddish, the abdominal spots more finely and indistinctly ringed, the terminal line fine, brown, in the ♂ almost entirely wanting, the fringes whitish, only very weakly spotted. Hindwing shaped nearly as in *toxeres* and *cosmata*, apex of forewing not acute. Costa Rica. *nympharia.*

R. extremaria *Walk.* Smaller than *lixaria*, palpus shorter, wings rather lighter green, abdominal spots and terminal line apparently less developed, fringes with a broad ochreous or reddish line through the middle, sometimes (as in the type specimen) suffusing nearly their entire expanse. WALKER gives no locality, but his specimens were probably from Florida. The BARNES collection has a specimen from Hastings, Fla., which may belong to it. *extremaria.*

R. rubromarginaria *Pack.* I formerly sank this to *extremaria*, but our American friends tell us it is distinct. Cell-dots wanting, white lines (at least in PACKARD's type from Montreal) broader than in the allies; there is also a red terminal line, which is weaker or obsolete in *extremaria*. Eastern North America, range unknown to me. *rubromarginaria.*

- abdominaria.* **R. abdominalia** *Barnes & Mc. D.* (= *lixaria* *Grossb.*, *nec Guen.*) perhaps scarcely belongs to this group, as the abdominal pattern is somewhat different; indeed the short palpus in both sexes may necessitate its removal to *Nemoria*. Antenna of ♀ narrowly pectinate. Face reddish, in the centre green, at edges with white markings nearly as in *cosmeta*; abdomen with the dorsal spots creamy, confluent into a broad line, not edged with red; the dark cell-dots small, but distinct, lines faint, antemedian present on both wings, postmedian nearly parallel with termen; terminal red line distinct, with minute white dots at the veins; fringes tinged with yellow, only at apex of forewing with reddish. Expanse 18 mm. (♂), 24 mm. (♀). Florida.
- associaria.* **R. associaria** *Barnes & Mc. D.* (= *extremaria* *Grossb.*, *nec Walk.*). Very similar to *abdominaria*, but with the palpus (♀) much longer, cell-dots fainter, obsolete beneath, terminal line with larger white vein-dots, hindwing and its postmedian line more angled in the middle. Florida, founded on a single ♀ taken at Fort Myers in April.
- catachloa.* **R. catachloa** *Hulst* seems to be another very *lixaria*-like species, palpus less strong, hindwing more regularly rounded, cell-dots smaller, lines perhaps more markedly dentate, but not very strong, vertex with broader red band. I have, however, only seen one specimen. Florida.
- texana.* **R. texana** *Hulst* perhaps belongs in section B, as *irregularia* *Barnes & Mc. D.* is said to be "apparently related" to it. Face reddish; abdomen above green, with rather large, pure white spot on each segment; wings clear green, regularly striated with white, cell-dots and marginal line prominent, red-brown, the white lines weak, the postmedian strongly wavy; fringes white, with red spots at ends of veins. Hindwing with distal margin somewhat wavy. Texas.
- knobelaria.* **R. knobelaria** *Cassino* is said to resemble *texana*, but the abdominal white spots, which are present on every segment except the 2nd, though growing smaller and weaker posteriorly, are encircled with red; the red face has white spots against the antennae; the postmedian line is crenulate. Palpus moderate, terminal joint very small. Arkansas.
- rubro-lineararia.* **R. rubrolinearia** *Pack.* (= *rubrolincata* *Pack.*) (3 d). A rather small species, with the white lines distinct on both wings, but slender, the red terminal line very slender, the glossy whitish fringes with a creamy or sometimes greenish suffusion and with the reddish dots at vein-ends small and generally very faint. The white spots of the abdomen in the examples before me with ill-defined reddish circumscription (not mentioned by *PACKARD*). — Larva on *Myrica cerifera*, chocolate-brown, with lateral protuberances of more even development throughout the abdomen (except anal segment) than in *degener*, directed more cephalad. Distributed from Pennsylvania to Florida.
- festaria.* **R. festaria** *Hulst* (3 b). More strigulated with white than any of the preceding, otherwise very similar to *rubrolinearia*, but with the apex of the forewing slightly more acute, the red terminal line generally stronger, the postmedian of the hindwing less bent. Arizona.
- obliqua.* **R. obliqua** *Hulst*. Palpus of ♀ long. Wings bright green, not strigulated with white, the white lines of the forewing broad, straight, the antemedian at least as far from base at hindmargin as at costa, the postmedian parallel with termen, hindwing with postmedian line somewhat bent, both wings with terminal red line. The name-typical form has no cell-dots and occurs in Colorado in August, therefore probably a second generation of — form. **bellonaria** *Streck.*, which is larger, with distinct dark cell-dots and is found in the same State in May and June.
- manostigma.* **R. manostigma** *Dyar* (5 a). Expanse 25 mm. Face purple. Abdomen above green, the white spots large, red-ringed. Wings with the lines reduced to white vein-dots, antemedian of forewing curved, postmedian sinuous, weakly continued on hindwing; cell-spot of forewing enlarged, round, that of the hindwing punctiform; terminal line red; fringe white. Mexico: Misantla.
- sordifrons.* **R. sordifrons** *sp. n.* Expanse 30 mm. Distinguishable from the two following species in that the face is dull, rather dark purple-brown, only with green dots at the upper and white ones at the lower corners, the antennal pectinations shorter, their length decidedly less than diameter of shaft. Abdomen with first white spot rather large, very slightly ringed with red, those on segments 3 and 4 small, not ringed, one on segment 2 indicated, but weak. Cell-dots larger than in *gortaria* (3 e) from the same locality, hindwing slightly narrower, with the 1st median vein longer stalked, fringes rather strongly red-spotted at ends of veins. Alto da Serra, São Paulo, April 1923 (R. SPITZ), type in Mus. Tring.
- viridicincta.* **R. viridicincta** *Schaus.* "Face buff" (discoloured from green, its colour in the next 9 species). Abdominal white spots not ringed with red. Cell-dots black, shaded with buff; postmedian consisting of white dots which are connected by lunules; an antemedian present on forewing only; terminal line brown, with faint yellow spots on veins. "Expanse 20 mm." S.E. Brazil: Castro. A larger specimen from the same locality has the face similarly discoloured, one from Rio Grande do Sul has it green.

R. gortaria *Schaus* (3 e). Larger than type *viridicincta* (27→32 mm), the abdominal spots encircled with red, the lines generally punctiform. S.E. Brazil. Variable in the size of the abdominal spots and the development of lunules between the white vein-dots. Mr. E. DUKINFIELD JONES considered it probably a form of *viridicincta*. *gortaria*.

R. despicata *sp. n.* (3 e). Smaller than *fontalis* (20—24 mm), hindwing narrower, with termen less bent at 3rd radial, 1st median rather shortly stalked; abdomen with the white spots small, not ringed with red, cell-dots enlarged, with a dusky suffusion around them, white lines weak, red terminal line broad, fringes rather pure white, with the red spots dark, but narrow. St. Jean du Maroni, rather common. Type in Mus. Tring. *despicata*.

R. fontalis *Warr.* (= *agenoria* ♀ *Schaus*). Abdominal spots all three large with red circumscription (sometimes almost obsolete in the third one); red terminal line stronger than in *gortaria* (3 e), the fringes more distinctly spotted with red; a red band on crown of head; otherwise similar to small examples of that species with well-developed postmedian. ♀ palpus with terminal joint about as long as second. Known from Costa Rica and Chanchamayo, besides WARREN's type-locality Fonte Boa. — ♂-ab. (?) **agenoria** *Schaus* has only the first abdominal spot developed and has the band on the head "brown". I have not seen the unique Costa Rica ♂ from which the description was made, but the ♀♀ which were associated with it seem indistinguishable from *fontalis*. — **venezuelae** *subsp. nov.* is a form or very closely related species with the distal margin of the forewing rather straight, the hindwing rather less ample than in typical *fontalis*, the lines more broken into vein-dots, the fringes more broadly white proximally; first two abdominal spots commonly enlarged. N. Venezuela: San Esteban, a series in Mus. Tring; also a few examples from E. Colombia, Maroni River and Para. *fontalis*. *agenoria*. *venezuelae*.

R. sectifimbria *sp. n.* (3 e). Extraordinarily like *venezuelae*, with which I should have united it but that the terminal joint of the ♀ palpus is less long, being scarcely $\frac{2}{3}$ of second joint; little or no red-brown admixture on its green outside. Termen of forewing slightly more curved anteriorly than in *venezuelae*; fringes cut by narrow, but sharp red dashes, the extremities very pale olive. Antennal pectinations of ♂ slightly longer than diameter of shaft. First two abdominal spots rather large, margined with red; third one smaller and weaker. Red band on crown narrow. Expanse 26—29 mm. S.E. Peru: La Oroya, Rio Inambari, 3100 feet (E. R. OCKENDEN), the type and others in the Tring Museum, a paratype in the Hill Museum. *sectifimbria*.

R. antipala *sp. n.* (3 e). Until I saw DOGNINS types, I had this species determined as *xaliria*. Expanse 28 to 33 mm. Generally less small than the two preceding, antennal pectinations of ♂ still shorter (less than diameter of shaft, about as in *sordifrons*), palpus of ♀ with shorter 3rd joint (scarcely $\frac{1}{2}$ of 2nd joint), abdominal spots small, not edged with red, white vein-dots small, only very weakly connected by indications of sinuous lines, red spots in fringe rather strong, expanding distally. S.E. Peru: Carabaya, chiefly from La Oroya, Rio Inambari, 3100 feet. Type ♂ in the Tring Museum. — **purifimbria** *subsp. nov.* is a rather bright green form from St. Jean du Maroni, with the fringes as in *sectifimbria* but otherwise agreeing well with typical *antipala*. Type in Mus. Tring. *antipala*. *purifimbria*.

R. callirrhoë *sp. n.* Rather paler green than *antipala* (3 e), antennal pectinations of ♂ as long as diameter of shaft, crown without a red stripe, termen of forewing nearly straight, of hindwing only very feebly bent in the middle; cell-spots larger, more elongate (fully half as long as the 3rd discocellular), purplish, the white lines distinct, antemedian of forewing slightly sinuous, postmedian consisting of fine lunules between the white vein-dots, continued on hindwing, terminal line very slight, olive-brown (not red), fringes only very narrowly white proximally, the spots buffy olive or more greenish, inconspicuous, the distal part greenish. St. Jean du Maroni, type in Mus. Tring; Bugaba (Panama) and Upper Rio Negro (E. Colombia) a few ♂♂ in other collections. Perhaps better placed in the *diarita* group. *callirrhoë*.

R. dentilinea *Warr.* (3 e) in its typical form is readily known by the shadowy brown bands which accompany the dentate white lines. Pectinations of ♂ somewhat longer than diameter of shaft. Palpus of ♀ elongate. Abdomen with the first white spot small, brown-bordered, the second larger and clear. Crown without red stripe. Described from British Guiana, widely distributed in the N. and E. of South America. — **tenuilinea** *Kaye*, from Trinidad, to judge from the few examples known to me, has the brown shades weaker, transitional towards the following race. — **defectiva** *subsp. nov.* has the brown shades quite weak, on the hindwing generally wanting. Carabaya, S.E. Peru, the type from Tinguri, 3400 feet, August 1904, in Mus. Tring. — **paurocaula** *subsp. nov.* is a little smaller than typical *dentilinea*, perhaps relatively somewhat shorter-winged, the brown shades on the wings fully as strongly developed, the abdomen with the second white spot reduced, surrounded by brown clouding, a similarly formed third spot developed on the 4th segment. Hindwing with the 1st median scarcely stalked. Argentina: Misiones, February and July (WAGNER), 2 ♂♂ in coll. L. B. PROUT. Will possibly prove a separate species. *dentilinea*. *tenuilinea*. *defectiva*. *paurocaula*.

R. xaliria *Dogn.* is extremely like *defectiva*, possibly another form of *dentilinea* (3 e), but the antennal shaft appears more slender, with the length of the pectinations almost twice its diameter. No trace of brown shading on either wing, cell-dots generally smaller, blacker, abdomen with the first white spot the largest, *xaliria*.

not dark-edged. Distinct from *antipala* (3 e) in the rather fuller hindwing, absence of red line on crown, better developed white lines on the wings and other details. Described from Ecuador, also known from French Guiana, Para and Fonte Boa.

sellata. **R. sellata** Warr. (3 d), from La Oroya, Rio Inambari, S.E. Peru, is very distinct from the other species which occur with it in the red blotch on the abdomen, as well as in its rather larger size, weaker markings and somewhat deeper, less yellowish green colour ("bice green" of RIDGWAY, "Nomenclature of Colors", while they incline more to "Biscay green"). Has also been taken in Colombia.

anchistropa. **R. anchistropa** *sp. n.* (6 k) 25 mm. At first glance closely similar to *fontalis* but with the lines still more approximated, the postmedian weak except as short dashes on the veins; antemedian gently and rather regularly curved. Structurally, and in the brown (not red) markings on the abdomen, closer to *dentilinea paurocaula* — pectinations not longer than diameter of shaft, 1st median of hindwing about connate. Face green. Terminal line dark brown-red. Hindtibial process rather short. Taperinha, near Santarem, 21—23 August 1927 (Dr. H. ZERNY). Type in Mus. Wien.

haematospila. **R. haematospila** Prout. Unique in having the 3 abdominal spots bright red without white centres. Hindtibia with terminal process short. Distal margin of forewing nearly straight, of hindwing little bent in middle; cell-dots small, red; white lines weak, nearly direct; terminal line and fringe nearly as in *dentilinea* (3 e). Preto, Brazil, only the type ♂ known.

acutularia. **R. acutularia** Schaus. Apex of forewing more acute than in the rest of the group. Head green. Abdomen with 3 white spots, the first and third edged with dark red. Cell-dots minute; white lines very fine, the postmedian straight on the forewing; terminal reddish line present; fringe weakly marked. Costa Rica.

pacificaria-group.

Hindwing with 2nd median well stalked. Abdomen with fuscous blotches or (especially in some ♂♂) uniform green above.

pacificaria. **R. pacificaria** Möschl. (3 e). Face green. Palpus in ♀ with 3rd joint moderately long. The white lines crenulate, weak, often scarcely discernible except as white dots on the veins. Described from Paramaribo, but widely distributed from Central America to S.E. Brazil.

remota. **R. remota** Warr. (3 f) differs in having the lines almost straight, the red terminal line obsolete, the fringe-spots faint. Costa Rica, Panama, Venezuela, Lower Amazon (near Santarem).

nigrisquama. **R. nigrisquama** Dogn. (3 e) is a smaller species, with less ventricose hindwing, unspotted fringe, only one blackish spot on the abdomen, but this large. S.E. and E. Peru.

tutala. **R. tutala** Dogn. Much like *pacificaria* (3 e) but without the red terminal line. Abdominal blotches strong, even in the ♂. Ecuador: Loja. DOGNIN mentions a probable ♀, in poor condition, from Popayan and the United States National Museum has a rather large ♀ from Rio Grande do Sul. As the terminal line is occasionally very weak in aberrations of *pacificaria*, I have wondered whether *tutala* may be an extreme development of the same.

integra. **R. integra** Warr. (= *imitans* Warr.) (3 e) is like *remota* but with the face red. Mexico to Paraguay and S.E. Brazil (loc. typ.), but apparently wanting in the Guiana-Amazon subregion. — ab. **versiplaga** Dogn. has a single dark dorsal spot, occupying the first 3 abdominal tergites; 2 ♂♂ from Colombia.

rectilinea. **R. rectilinea** Warr., from Cuba, is perhaps an island development of the preceding. Terminal line (and antemedian?) wanting, otherwise very similar. I have seen a poor ♀ from Dominica which looks intermediate.

carbina. **R. carbina** Druce (5 a). Also similar to *remota* in the green face and direct postmedian line, but rather larger, with sharply blackish, sometimes enlarged, cell-dots and a tendency for the line to break into vein-dots. Mexico. The few examples known to me suggest that it is variable.

consimilis. **R. consimilis** Warr. (3 f). Similar to *carbina*, the hindwing slightly more angled, the white postmedian dots edged proximally by brown ones and in well-marked specimens connected by fine but rather profound white lunules, thus appearing more dentate than that of *carbina*. La Oroya, Carabaya. Also known from Bolivia.

disjuncta. **R. disjuncta** Warr. (3 f). A link in shape and aspect towards the three following. Forewing with costa somewhat arched; hindwing rounded or scarcely bent, fairly broad. Face dark purple-brown. Abdomen generally with a large purple-brown blotch at base and a smaller one posteriorly, as in some forms of *erina* ab. *bipunctata*. Vein-dots nearly as in *consimilis*, but the postmedian of the forewing anteriorly oblique in the direction of the apex, the first 2 or 3 dots somewhat strengthened. No terminal line. Fringes green proximally. Tucuman (loc. typ.), Paraguay and S.E. Brazil. — **unipunctata** Prout seems to be merely an aberration, possibly a race; anterior spots of the postmedian obsolete, abdominal spots wanting. Rio Grande do Sul, 1 ♂.

R. erina Dogn. (3 f) is a further link towards the extreme species which follow. Larger than *disjuncta*, *erina*. the subapical brown dots much enlarged, partly confluent. — ab. **bipunctata** Dogn. is a very frequent form *bipunctata*. which has, in addition to the basal abdominal blotch of the type (which is in the ab. often reduced), a second dark spot on the 5th tergite. — *erina* was described from Ecuador, but extends to Costa Rica, French Guiana and Bolivia.

R. punctilinea Dogn. (3 f). Antenna rather long. Hindwing, especially in the ♂, with abdominal margin *punctilinea*. strongly elongate. Abdomen at base with a small dark spot (only in some ♀♀ with the large purplish blotch of the two preceding), the posterior spot larger, but rather variable. Cell-dot of forewing large. This species and the following are distinguished from the rest by having, in addition to the brown dots or spots of the true lines, a very irregular, more or less interrupted brown band proximally to the postmedian, especially on the forewing. In *punctilinea* this is often faint. Mexico, Costa Rica, N.W. Venezuela (loc. typ.), French Guiana, Rio Madeira.

R. parcipuncta Dogn. (3 g). Wings still somewhat more elongate, cell-mark more elongate, brown *parcipuncta*. markings stronger, three postmedian series developed on the anterior part of the forewing. Otherwise close to *punctilinea*. Commonest in French Guiana, whence it was described, and at Fonte Boa, known to me also from Venezuela and (a separate race?) from S.E. Brazil.

diarita-group.

Not always sharply differentiable from the two preceding groups, although WARREN founded upon it a separate genus, *Lissochlora*; in general, however, presenting a distinct aspect on account of the rather more slender build, straight distal margin of the forewing (with consequently sharp apex) and not, or only quite weakly, bent termen of the hindwing. Hindwing generally with the 1st median connate, rarely well stalked, but sometimes variable within the limits of a single species. Abdominal ornamentation, when present, quite simple, consisting only of white dots or a single small black spot anteriorly; only in *eugethes* coloured as in the *lixaria* or the *albociliaria* group.

R. virididiscata Dogn., founded on a ♀ from Merida, Venezuela, suggests a transition towards the preceding *viridi-* group and its author compares it with *remota* (3 f). The abdomen, however, is entirely without dorsal orna- *discata*. mentation, the forewing rather acute, the hindwing little bent in the middle and with the 1st median only quite shortly stalked. Distinctive of this species is the entire absence of red and blackish, the face, upperside of palpus and the cell-spots being green; the white lines are weak, somewhat erenulate.

R. incognita Warr., unfortunately founded on a ♀ without locality, may be placed provisionally here, *incognita*. though it is not even certain that it is American. Except in its (weakly) angled hindwing it resembles *bryata* *Feld.* (6 h). Face green, with 2 white dots at lower edge. Palpus long, becoming darker from the end of the 2nd joint. Costal edge of forewing white, tinged with reddish at base. Cell-dots minute. Lines extremely fine, lunulate, chiefly marked on the veins. Terminal line reddish or brown, scarcely perceptible. Fringe cream-yellow proximally, white distally. Possibly *virididiscata* is an aberration of it; I have not been able to compare them side by side.

R. parvipuncta Warr. (3 f) is also intermediate between our groups. Wings more rounded than in most *parvi-* of the neighbouring species, hindwing with 1st median very shortly stalked. Face and upper part of palpus red, *puncta*. otherwise I should be strongly inclined to sink it to *delicataria*. Rio Demerara (types) and Maroni River.

R. delicataria Möschl. is figured — but probably inaccurately — with much stronger postmedian *delicataria*. line. Otherwise apparently quite like *parvipuncta* (3 f) but the “head greenish white, palpus bone-yellow”. Paramaribo, 1 ♀, unknown to me in nature.

R. viridifimbria Dogn. (3 g) is another small species with more rounded wings than in the typical *liriata* *viridi-* group, but has generally the 1st median of the hindwing connate, though it can also be stalked. Easily re- *fimbria*. cognized by the erenulate lines, white terminal dots and green, whitish-tipped fringes, but especially by the underside, which has a broad, curved postmedian line on the forewing, darker than the ground-colour, anteriorly smoky. Colombia. A ♀ from Hacienda Cayandede, Riobamba, in the OBERTHÜR collection, has almost the entire forewing beneath smoky suffused, with the broad line strong, smoky throughout; hindwing with 1st median stalked. Probably a race.

R. mollissima Dogn. (5 b). A small bright-green species, with the non-erenulate white lines of *integra* *mollissima*. (3 e), etc., and both well developed on the hindwing, but without abdominal maculation and with no red terminal line. Costal edge and fringes white. Face reddish. Hindwing with 1st median very shortly stalked. Loja, Ecuador.

R. acora Dogn. Face green. Palpus rather short. Antennal pectinations scarcely twice diameter of. *acora*. Abdomen with small white dorsal shaftspots. Forewing slightly less acute than in *pasama* (3 g); hindwing with termen slightly elbowed, 1st median stalked. Cell-dots minute, greenish, on hindwing scarcely visible; white

lines fine, indistinct, not crenulate; terminal line very fine, brown rather than red; fringe cream-colour. Ecuador: Loja.

bryata. **R. bryata** *Feld.* (6 h). Face green. Distal margin of forewing straight, of hindwing little curved. Cell-dots minute, blackish; white lines crenulate, but very faint; terminal line fine, red-brown, broken into dashes; fringe cream-whitish. Bogota. Hindwing in the type with 1st median separate. — **flavifimbria** *Warr.*, also from Bogota, is a rather smaller form with the distal margin of the forewing not quite so oblique, the hindwing slightly better rounded, with the 1st median separate or connate. Perhaps best treated as an aberration, but possibly a species. — **albifimbriata** *Dogn.* is probably another aberration, or perhaps a high-altitude form (altitude of type not recorded), rather small, with the lines (including the terminal) obsolete. 1 ♂ from Bogota. As "agreeing with type" M. DOGNIN sent me a ♂ from the same district, 2800—3200 m, in which the terminal line is present, though extremely faint, and I have seen others identical, from the same altitude. — **resurgens** *subsp. nov.* is probably a local modification, rather larger (♂ 30 mm, ♀ 34), with the red terminal line stronger, the hindwing slightly less straight-margined, with the 1st median connate or stalked. The white lines visible, rather well crenulate. Paso del Quindiu, Central Cordillera, Colombia, 3500 m, a short series collected by A. H. FASSL; type and allotype in coll. L. B. PROUT. A closely similar ♂ from Monte Tolima, 3100 m, in Mus. Tring.

iguata. **R. iguala** *Dogn.* is a close ally of the preceding, if not, indeed, still another form. Rather smaller and more bluish, the terminal line developed, though slender, the hindwing with the 1st median stalked. Both wings with the white markings wanting. Ecuador.

nigricornis. **R. nigricornis** *Warr.* is a small species (22 mm), with the pectinations very short, clavate, dark-coloured, the distal margin of the forewing not so oblique as in *bryata* (6 h) that of the hindwing more as in *mollissima* (5 b). Rather brighter green than in those species; cell-dots black; the white lines rather faint, crenulate but scarcely sinuous; terminal line mixed with black, fine, interrupted at the veins; fringe light buff. Underside pale, rather strongly marked, the postmedian line edged with dull green proximally, the base of the costa of forewing with dark suffusion. E. Peru.

pasama. **R. pasama** *Dogn.* (3 g). Pectinations little longer than in *nigricornis*, but not clavate. Distal margin of forewing more oblique, of hindwing somewhat less convex. Cell-dots rather larger; postmedian line sharper and more irregular, beneath weaker, not edged with green. Abdomen with a black anterior dot. Ecuador (type) and Peru.

neodmes. **R. neodmes** *Prout* (3 g). A rather thinly scaled species, larger and more pointed-winged than *diarita*, the cell-dots and black abdominal spot larger. Carabaya, S.E. Peru, at 9000 feet and upward.

diarita. **R. diarita** *Dogn.* (3 g) is generally recognizable by its small size and rather regular, slightly sinuous series of large white postmedian vein-dots. Abdomen with a row of white dots, the first one often in part blackened. Costa Rica to Bolivia, Argentina and Brazil. Described from Ecuador.

nortia. **R. nortia** *Druce* (3 g). Very similar to *diarita*. I do not know how to distinguish them definitely, though *nortia* is perhaps on an average still smaller, the black abdominal spot always developed, the white dots rather smaller, the cell-dots on an average larger. Central America, the type from Mexico.

latuta. **R. latuta** *Dogn.* represents an exceedingly difficult assemblage which has not yet been satisfactorily analysed. Abdomen with very small white mark at the posterior end of each segment, but extremely liable to discoloration. Forewing in shape quite characteristic of the present group, hindwing, on the contrary, with the 1st median shortly stalked and — especially in some of the forms (? species) — with the termen noticeably elbowed at the 3rd radial, thus more conformable to the *lixaria* group, particularly *callirrhoë*, which may be nearly related to these. Antemedian line on forewing straightish, on hindwing curved and much more proximal, postmedian slender, strongly dentate, terminal slight, reddish-brown, fringe green-yellowish, whiter at base, at apex of forewing more or less strongly darkened; underside whitish green, becoming brighter green on anterior part of forewing. Typical *latuta*, only positively known from the Loja originals, is relatively large (26—31 mm), ♂ hindtibial process fairly long, cell-dots not large. Specimens from Monte Tolima and from Bolivia agree fairly well, though the antemedian line of the forewing is scarcely so straight; also some from Cushi and Huancabamba, E. Peru, except that the postmedian line is generally rather strongly expressed on the underside.

vividata. **R. vividata** *sp. n.* (3 g). On an average rather smaller than *latuta* (24—28 mm), with hindwing slightly more bent. Hindtibial process of ♂ short. Colour a fuller, more vivid green; cell-dots larger; terminal line obsolete or exceedingly faint. Underside rather well marked, approaching that of *viridilinea* (3h), the brighter green colour suffusing not only the costal region of the forewing but also other parts of its proximal area and the postmedian of both wings, also occasionally the apex of the hindwing. Carabaya, S.E. Peru, the typical series consisting of 12 ♂♂ from La Oroya, Rio Inambari, 3100 feet (G. OCKENDEN), in the Tring Museum.

R. viridilinea Prout (3 h). Postmedian line much less dentate than in *vividata*, behind the 2nd median *viridilinea*. of the forewing almost straight (in the two preceding species deeply incurved), forewing beneath with the green of distal area more extended than in *vividata*, hindwing beneath with the green line much stronger, at the medians rather strongly projecting; 1st median connate or very shortly stalked. Hindtibial process of ♂ longer, almost as in *latuta*. Carabaya; Santo Domingo. — **cushiensis** *subsp. nov.* is a somewhat enigmatical *cushiensis*. form, with the termen of the forewing slightly more oblique, that of the hindwing scarcely bent, the ground-colour above slightly paler, with the cell-dots smaller. Cushi, Huanuco, E. Peru, type and others in Mus. Tring. I have also a large ♂ from Huancabamba, Cerro de Pasco, of the *cushiensis* form but with the cell-dots not reduced.

R. montana is a more thinly scaled species from high altitudes, the white abdominal dots small, the postmedian line dentate, but much more slightly than in *latuta*, the terminal reddish line present, but interrupted at the veins. Three forms seem clearly differentiable. — **montana** Prout (3 h), from Agualani, Carabaya *montana*. (9000 feet), has a slightly bluer tinge than the other forms, the white lines a little thickened. — **araemita** *nom. aracomita. nov.* (= *tenuilinea* Prout, *nec* Kaye), from Oconeque, Carabaya (7000 feet), has the lines quite slender. — **smaragdina** Prout, from Huancabamba, Cerro de Pasco, E. Peru, has the lines still more slender, the ground-*smaragdina*. colour brighter green, the scaling not quite so thin.

R. carmen Prout (3 h). Similar to *montana*, but with the postmedian line as free from denticulation *carmen*. as in *viridilinea*, similarly straight at the fold of the forewing and curved inward to costa. Hindtibial process short, rather more so than in *montana*. Forewing with 1st subcostal anastomosing with costal more constantly. Costal margin of forewing beneath strongly darkened in proximal half. E. Peru: Cushi and Huancabamba (Cerro de Pasco).

R. cecilia Prout differs structurally from the two preceding in that the hindtibia is not dilated, the *cecilia*. terminal process wanting; superficially in that the cell-dots are wanting. Forewing with 1st subcostal free. Lines at least is non-crenulate as in *carmen*, the postmedian on the forewing slightly less curved to costa, on the hindwing a little less outbent behind the middle. Cushi, Huanuco, 1820 m, only the type known.

R. ella Prout. A rather small species (24 mm), with the wings relatively broad and short. The *ella*. markings of the abdomen and wings may be compared to those of *latuta*, with rather strong cell-dots, but there is no terminal line, only white dots at the veins, as in *viridifimbria* (3 g), with which species it shares the green fringes, though they show here a slender white line at their base. Hindtibial process rather long, reaching beyond middle of 1st tarsal joint. Colombia: Torné, Cauca Valley, only the type known.

R. dorsilinea Schaus is unique in having a continuous white line from hind part of thorax along the *dorsilinea*. abdomen. Face red-brown. Cell-dots minute. The usual lines (including the reddish terminal) fine, the postmedian on forewing parallel with termen. Hindwing with 1st median about connate. Expanse 25 mm. Costa Rica.

R. eugethes Prout is in some respects an anomalous species. The wing-shape, scaling and venation (1st *eugethes*. median of hindwing connate) associate it definitely with the present group, but the first white abdominal spot is bordered with bright red anteriorly and laterally, and the other three stand on a duller red patch — characters which suggest a connection with the *lixaria* or with the *albociliaria* group. The punctiform white markings are identical with those of *diarita* (3 g), unless rather smaller; expanse 30 mm; cell-dots slightly redder than in that species: antennal pectinations a little shorter. Huancabamba, Cerro de Pasco, only the type known.

inaequalis-group.

Abdomen with white, red-encircled spots. Wing-margins more ventricose than in the *lixaria* and *albociliaria* groups. Hindwing with 1st median connate or just separate.

R. inaequalis Prout (5 b). An interesting species, with the borders beginning to suggest the *lafayaria* *inaequalis*. group, from which it differs in the green face and abdomen. 1st median of hindwing just separate, thus intermediate between the *lixaria* and *albociliaria* groups. ♂ antennal pectinations scarcely as long as diameter of shaft. Hindlegs unfortunately lost in the unique type. Santo Domingo, Carabaya, S.E. Peru.

R. prava *sp. n.* (3 h). Evidently related to *inaequalis*, agreeing essentially in shape and structure. *prava*. Differs chiefly in its considerably smaller size, relatively larger cell-spots and simple terminal line. Hindtibia without hair-pencil or terminal process. Hindwing with 1st median connate (type) or just separate (paratype). The type is a sport in venation, the costal of both wings forking a little beyond the end of the cell, both arms of the fork strong and reaching the costa. Bolivia: Prov. del Sara, Dep. Sta. Cruz, 450 m. (J. STEINBACH), type ♂; Brazil: Uberaba, Minas Geraes. Both are in the JOICEY collection, the proximal part of the wings unfortunately discoloured in relaxing.

albociliaria-group.

Both wings with 1st median arising well before end of cell.

- strigaria*. **R. strigaria** Schaus. A simple green species with whitish strigulae on the wings, superficially exactly like an African *Prasinocyma*. Expanse 29 mm. Face brown. Palpus moderate, with terminal joint short for a *Racheospila* ♀. Founded on a single ♀ from Turrialba, Costa Rica.
- venilineata*. **R. venilineata** Warr. (3 h). Hindtibia of ♂ not dilated. Face bright red. Abdomen with white dorsal spots. Quite characteristic are the white veins on both wings. Carabaya, S.E. Peru, at 9000—9500 feet.
- nigripes*. **R. nigripes** Dogn. (3 h). A rather large, broad-winged species, strigulated as in *strigaria*, but with dark cell-dots, red costal edge to forewing, and more or less developed reddish, white-edged vein-dots representing the lines. Hindtibia not dilated. Colombia: Quindiu, at 11,500 to above 12,000 feet.
- sanguinipunctata*. **R. sanguinipunctata** Dogn. (3 i) has about the size of *venilineata* but is neither veined nor strigulated with white. Costal edge of forewing white; cell-dots red; lines white, not broken up into vein-dots, the postmedian hardly sinuous. Argentina: Tucuman.
- albilineata*. **R. albilineata** Warr. ♀, 44 mm. Rather bright green, the veins finely white, a large oval reddish cell-spot, the lines white, the postmedian broad, almost band-like, slightly curved, more oblique than termen; fringes white. Limbani, Carabaya, S.E. Peru, 9500 feet. Very handsome and unmistakable.
- thelys*. **R. thelys** sp. n. (= *inclusaria* part. Druce nec Walk.). 31—32 mm. Rather delicately built, abdomen slender. Face rather bright red, below with moderate cream-whitish spots, which nearly or quite meet in the centre. Antennal pectinations about 3 times diameter of shaft. Hindtibia with terminal process, about ½ length of 1st tarsal joint. Abdomen discoloured, but showing in the type reddish, posteriorly pale-bordered spots on segments 3, 4 and perhaps 5. Wings paler green than in the succeeding members of the group. Forewing with costa above, and much more extendedly beneath, reddish, dark-suffused; cell-dot of forewing minute, of hindwing less minute and more red; both lines developed, creamy whitish, the postmedian strongly lunulate-dentate, the antemedian irregularly sinuous, much more proximal on hind- than on forewing; reddish terminal line extremely fine, interrupted; fringe cream-buff, with a slight reddish dot at apex of forewing. Underside whitish green, with costal region of forewing greener. Guatemala: Quiche Mountains, 9000—10 000 feet (type) and Totonicapan, 8500—10 500 feet; both in coll. Brit. Mus.
- monospilonota*. **R. monospilonota** Prout. In size and shape near *rhodonota* (3 i), but with the forewing slightly straighter-margined and more acute. Distinguished by having only one abdominal spot, placed on segment 1, large and almost black. Costal edge of forewing white, not red; no red terminal line nor fringe-spots; the dots on the wings more black than red. Monte Tolima, Colombia, only the type known.
- plenifimbria*. **R. plenifimbria** Dogn., unknown to me, is probably near *monospilonota*, but rather smaller, more *purpureotincta*-like; cell-spot of forewing large, lilacine, postmedian vein-dots not — as in *monospilonota* — accompanied by white dots; no terminal line; fringe unicolorous, pale. San Antonio, W. Colombia.
- rhodonota*. **R. rhodonota** Prout (3 i). Larger than *purpureotincta* (3 k), forewing with apex a little sharper, the rows of dots not arising from enlarged costal spots; fringes less sharply chequered; abdominal spots predominantly red, without, or with only small, white centres. Carabaya, S.E. Peru, at high altitudes (2700—3000 m.).
- discipuncta*. **R. discipuncta** Warr., founded on an extremely worn ♂ from “La Paz” (E. Bolivia), nearly agrees in shape and structure with *rhodonota* (3 i), but the hindtibial process — unless damaged — is shorter. No markings are visible excepting the cell-dots, which are small. Must probably remain undeterminable until the genitalia or other anatomical characters of the group are thoroughly investigated.
- liriata*. **R. liriata** Dogn. (= *alboseriata* Warr.) (3 h) differs from most of the neighbouring species in having the lines represented by white dots only, not by red and white pairs. Cell-dots small, terminal red line very slender, fringes white. Mexico, Colombia to Peru, Venezuela; described from Ecuador.
- dispilata*. **R. dispilata** Dogn., founded on a ♂ from Medina, E. Colombia, 500 m, is said to differ from *liriata* only in having the palpus white (in *liriata* mixed with red) and in lacking the red terminal line. On the type, however, I remarked that the latter was “faintly marked with red”, and as I have a Colombian aberration of *liriata* in which the red colouring is very weak, I suspect that this, too, may be an aberration.
- rufoseriata*. **R. rufoseriata** Prout (6 k) has the same small cell-dots and slender terminal line as *liriata*, but differs in the shorter antennal pectinations and in having red dots (minute dashes) accompanying the white ones; from *molliculata* (3 i) it differs in the smaller abdominal spots and much reduced red markings, the costal edge narrowly white, only red at the extreme base. Huancabamba, E. Peru.
- vinocincta*. **R. vinocincta** Warr., founded on a ♀ from Chiriqui, Panama, which has not yet been matched, is perhaps an aberration of one of the neighbouring species, with the rows of dots obsolete. Palpus about as long

as in *roseilinearis* ♀ (3 i). Face, occiput, palpus, strong cell-dots, broad costal and terminal lines bright rose-colour, the face with two large white spots at lower edge, the palpus with white tip; abdomen above similarly red, with a large white spot, or followed by one or more smaller (hind part broken off).

R. roseilinearis Dogn. (3 i) is very distinct in having strong dentate red lines and red abdominal margin to hindwing. Ecuador (loc. typ.) and E. Peru. *roseilinearis*.

R. pectinifera Prout (3 i). Superficially almost indistinguishable from *molliculata* except in its larger size and somewhat differently placed postmedian spot on R², but with the antennal pectinations of the ♂ much longer, 6 to 8 times the diameter of the shaft. In none of the nearest allies are they much over half that length. Carabaya, S.E. Peru, mostly from Santo Domingo; a small specimen (? local race) from Chiriqui in the Tring Museum. *pectinifera*.

R. molliculata Warr. (3 i). Distinguishable from *purpureotincta* by having the markings bright red instead of dull purple, the cell-spot less large, the postmedian less sinuous, with the dots on the three radial veins of the forewing equidistant from the distal margin. ♂ antennal pectinations at their longest scarcely over twice the diameter of the shaft. Carabaya, S.E. Peru. *molliculata*.

R. hoffmannsi sp. n. (3 i) is intermediate between *molliculata* (3 i) and *purpureotincta* (3 k), having nearly the coloration of the former, the antennal pectinations at least as long as in the latter (3 or rather more than 3 times the diameter of the shaft). Palpus a little longer than in either. The red costal edge of the forewing becomes fuscous on the underside, the cell-spot is rather larger than in *molliculata*, the costal spots enlarged, the dot on the 2nd radial very slightly more proximal than the neighbouring ones. E. Peru: Cushi (loc. typ.) and Huancabamba. — **paegnina** subsp. (? sp.) nov. differs in having the 3rd discocellular of the forewing rather more oblique, so that the cell-spot assumes a strikingly oblique position; it also presents a more *molliculata*-like appearance of account of the smaller costal spots, brighter red markings and crimson rather than fuscous costa beneath. Oconeque, Carabaya, S.E. Peru, 7000 feet, July 1904, 4 ♂♂, 1 ♀ in the Tring Museum. *hoffmannsi*.

R. dubiaria Oberth. (5 b), only known in 1 ♀, perhaps represents *hoffmannsi* in Venezuela, but the hindwing is less bent and the vein-marks of forewing longer, even the antemedian becoming definite dashes. Palpus over 2½ times as long as diameter of eye, 3rd joint nearly as long as 2nd. *dubiaria*.

R. jocularia Dogn. may prove identical with *hoffmannsi* or *dubiaria*, but I cannot quite reconcile the description. Antennal pectinations as *hoffmannsi*. The head (? face with palpus) is said to be "rosy white", the terminal line "rose brown" (in *hoffmannsi* and *quotidiana* it is bright red), the abdomen bears two large white red-ringed spots succeeded by two small simple white ones and the line of postmedian dots is perhaps different: "from costa at 3 mm from apex, nearer the margin on veins 6, 5 and 4, then receding on 3, 2 and 1". Loja, Ecuador, 2 ♂♂. *jocularia*.

R. quotidiana sp. n. (4 d). I formerly regarded this as a colour-form of *purpureotincta*, chiefly characteristic of Peru and Bolivia, but the discovery that it occurred together with true *purpureotincta* in S.E. Brazil induced me to investigate it. The distinctions in colour, less large cell-spots, etc., prove constant and the terminal armature of the ♂ valve is simpler (in *purpureotincta* the principal spine is accompanied by 3 or 4 small subsidiary spines, which is not the case here). From *molliculata*, which it approaches in colouring, *quotidiana* differs in that the postmedian dot on the 2nd radial is more proximally placed than its neighbours and in the longer pectinations; from *hoffmannsi* also in the former character and in having less (or no) red on the lines of the hindwing, the dot on the median vein being in any case white (in *hoffmannsi* red). S.E. Brazil, the type from Novo Friburgo in Mus. Tring. Also distributed in E. Peru and E. Bolivia. *quotidiana*.

R. inconspicua Bastelb. (5 b), founded on a rubbed ♂ from Jimenez, Cauca, Colombia, will possibly supplant one of the preceding, but seems more like a weakly marked *purpureotincta*; I have seen no confirmatory material from the locality. It differs chiefly in the absence of the terminal line and in the uniform grey-green fringes. Postmedian dashes rather long, only weakly tipped with white. *inconspicua*.

R. purpureotincta Warr. (3 k). Easily known by the purple-brown, not reddish, markings, the large, externally diffuse cell-spot and irregular postmedian of the forewing and predominantly white lines of the hindwing. Generally rather small. Palpus shorter than in most of its relatives. Antennal pectinations about 3 times diameter of shaft. Described from Venezuela, but widely distributed from Central America to the Amazons, rarer in Bolivia, Paraguay and S.E. Brazil. *purpureotincta*.

R. albociliaria H.-Sch. (5 b), also from Venezuela, can hardly be a large, heavily-marked ♀ of the preceding, as the evidently good figure shows a less irregular postmedian line, large cell-spot of hindwing, that wing as heavily marked with purple-brown as the forewing, terminal line thick, etc. I have seen nothing like it. *albociliaria*.

R. rufiguttata Warr. (3 k) has the markings almost as dull as in *purpureotincta* and *albociliaria* but much smaller, and is moreover a larger species than the rest of the group. Fringes creamy, very feebly spotted. Venezuela (type), Colombia and Carabaya. *rufiguttata*.

- jenna*. **R. jenna** Dogn. (3 k) is rather variable but cannot be confounded with any other species; unique in the development of a longitudinal dark patch on the costa of the forewing, extending from a postmedian comma-shaped marking to the apex. Ecuador to Bolivia. — **salubris** *subsp. nov.* is rather larger, strongly marked, a large obliquely placed cell-spot substituted for the cell-dot of the forewing. Colombia: Paso del Quindiu, Central Cordillera, 3500 m (A. H. FASSL). Type in coll. L. B. PROUT.
- calida*. **R. calida** Dogn., of which the type ♂ from Loja, Ecuador, remains unique, recalls *rufoseriata* (6 k) but is a little smaller, without appreciable white dots accompanying the red-brown ones on the veins and lacks the fine red terminal line and the red edgings to the white abdominal spots.
- licada*. **R. licada** Dogn. agrees with *calida* in the absence of red borders of the wings and of the small abdominal spots, but is otherwise very different. A pretty, delicately-built species, the wings stippled with rather bluish green and whitish, cell-spot small, brown, the postmedian line of white dots o b l i q u e, incurved posteriorly. Hindwing rounded. Hindtibia of ♂ almost without terminal process. Palpus with terminal joint very short. Loja.
- torsilinea*. **R. torsilinea** Warr., of which only the type is known, differs from small *hena* ab. *duplex* in having the cell-spots small and black, the ante-, as well as the postmedian row of dots double, no postmedian costal spot, some smaller markings on the abdomen after the large black one, etc. Paraguay: Patino Cue.
- hena*. **R. hena** Dogn. (3 k). Unmistakable through the large, composite cell-spot, large costal spot proximal to the postmedian and other characters. Colombia to Peru, the type from Ecuador. — ab. **duplex** ab. *nov.* has a series of dark lunules proximally to the vein-dots of the postmedian. Type a small ♂ from La Merced, Chanchamayo, in Mus. Tring.
- stacta*. **R. stacta** sp. n. (3 k). Expanse 31 mm. Close to *hena*, but with the wings somewhat broader, of a rather more yellowish green, the rows of dots more strongly connected by deep lunules of a purplish-brown shade, the postmedian dots produced into dashes and tipped distally with white dots. Fringe strongly spotted with purplish-brown at the vein-ends. Antennal pectinations at longest scarcely over twice the diameter of the shaft. Colombia: Pacho, E. Cordillera, 2200 m (A. H. FASSL), 2 ♂♂, 1 ♀, the type ♂ in coll. PROUT.
- florifera*. **R. florifera** Prout (6 i). Smaller than *hena*, with more numerous rows of blackish dots, including a terminal series on the veins. Face darker, but with the lower part white. Vertex green, only slightly mixed with white. San Antonio, W. Colombia.
- punctiseriata*. **R. punctiseriata** Dogn. must, according to the description, be very similar to the preceding, but is said to have the face white, the large cell-spot of the forewing and the subcostal spot proximal to the postmedian dots apparently less well formed. Not improbably, however, *florifera* may prove to be an aberration of it. Alto de la Cruces, near Cali, Colombia, at about 7000 feet.
- multiseriata*. **R. multiseriata** Dogn. is slightly larger than the two preceding and has three, instead of two distal series of dots, the last series small, interneural, quite near the termen. Face brownish. Bolivia: Rio Songo, at nearly 2500 feet; also from La Paz.
- rufipicta*. **R. rufipicta** Prout (5 b). Very distinct from all the others in the pattern, and with the forewing more acute than in the three preceding, the hindwing minutely concave between the 1st radial and the tooth at the 3rd. Huancabamba, Cerro de Pasco, E. Peru, also known from E. Bolivia and ? E. Ecuador.
- epaphras*. **R. epaphras** Schaus. Expanse 28 mm. Face white, mottled with brown. Abdomen with 4 small white dorsal spots. Wings with some scattered darker green spots; forewing with cell-mark composed of 4 fuscous spots, antemedian line formed of smoky spots, postmedian of confluent smoky lunules; hindwing with a fuscous spot at base, a fine antemedian line, with a smoky spot at inner margin, the smoky outer shade nearer the termen from the 3rd radial hindward. Costa Rica.
- aturia*. **R. aturia** Druce (5 b). The somewhat ventricose margin of the hindwing recalls the species of the *pacificaria* group, but the 1st median arises before the end of the cell. The markings are simpler than in the several species preceding it, consisting only of blackish cell-dots and red-brown dashes between the veins. Abdomen with a few small dark dorsal spots. Mexico (loc. typ.) and Panama.
- tisstigmata*. **R. tisstigmata** Dyar (= *magnidiscata* Prout) (5 c) has the cell-spots larger than in *aturia*, and differs particularly from it in the fuscous costa of the forewing and the presence of dark terminal vein-dots. Mexico (type), Guatemala and Costa Rica. — **scotocephala** Prout (3 k) from East Peru, also known from Colombia, is larger, the head more black-mixed, the forewing in general more heavily clouded costally in the region of the cell-spot and again at the subterminal. Hindwing slightly less bent at the 3rd radial than in *tisstigmata*, antemedian line not, as in that, thickened at abdominal margin. A link to the next group.

exertata-group.

Hindwing with 1st median varying in position. Abdomen with a dark spot or blotch near base. Wings darkened at base and with the markings heavy, in places band-like (*Blechroma* Möschl.).

R. puntillada Dogn., according to the description, differs from *nigricincta* (4 a) in having only a black dot at the base of the abdomen, no black blotch at the base of the forewing, etc. I should suppose it to be a species intermediate between *scotocephala* (3 K) and *nigricincta* (4 a), though M. DOGNIN inclined to sink the latter to it. Loja, Ecuador.

R. nigricincta Warr. (4 a). Hindwing with 1st median separate, as in the preceding group. Posterior part of thorax, base of abdomen and base of both wings heavily blackened, otherwise the dark markings are only strong on the anterior part of the forewing. Carabaya, S.E. Peru. I have seen it also from Huancabamba, Cerro de Pasco. — **fassli** *form. nov.* is rather smaller (length of a forewing 15 mm), the forewing relatively a little shorter, with the dark markings about the cell-spot more extended, reaching nearly to the 2nd median and followed by a rather strong, sinuous line from behind the base of the 2nd median to the hindmargin. E. Colombia: Upper Rio Negro (A. H. FASSL), a few ♂♂, the type in coll. L. B. PROUT. Perhaps a separate species, as the 1st median of the hindwing is connate with the 3rd radial.

R. exertata Möschl. (4 a). Crown green, not (as in the three preceding forms) white. The brown markings less mixed with black, less consolidated at costal margin of forewing, basal patch more interrupted by green spots, etc. 1st median of hindwing stalked. Described from Surinam, not rare in French Guiana and reaching Colombia and Costa Rica.

R. radiolinea Prout (4 a) is perhaps a form of *exertata*, as it has a similar green crown. The outer band of the forewing is broadened anteriorly, almost or quite touching the subterminal dots; the brown streak between the 2nd and 3rd radials is long and strong, its middle line sharply black. Upper Amazon, perhaps with a race in S.E. Peru and Bolivia.

R. conspersa Warr. (4 a) has the markings less dark, but considerably diffused, on the forewing variable in detail. The broad suffusion on the hindwing from the median line nearly to the subterminal is characteristic. 1st median of hindwing generally about connate, but varying a little in each direction. Common in S. E. Peru.

R. hypotiches *sp. n.* Smaller than *conspersa* (31 mm), forewing with costa less arched. Structure similar, pectinations at least as short. Forewing with the markings darker basally and anteriorly, those around the black cell-mark followed by a broad irregular band which runs outward between the radials and joins, at a right angle, an equally broad subterminal band which runs to the costa; posterior part of this subterminal band weaker, slender, strongly bent inward about the second median; a clear green area proximal to the last-named. Hindwing with the suffusion more solid than in *conspersa*, light purple-drab. Underside characterized by the presence of an irregular subterminal band, mostly slender, but broadening triangularly from 3rd radial to costa of forewing; forewing also with a blackish cell-spot and faint traces of the markings of upperside. Ecuador: Balzapamba (M. DE MATHAN), 3 ♂♂ in coll. Brit. Mus.

R. penthica Prout (5 g) is recognizable at once by the extremely extended blackish markings, scarcely any green remaining except at the discal margins. Huancabamba, E. Peru, only type known.

R. ozalea *sp. n.* (4 a as *ozolea*). Strikingly distinct in the firm median and subterminal lines, the transversely elongate cell-mark of the forewing and its accompanying longitudinal pattern of brown lines. Underside with the same markings very faintly reproduced. Crown of head green. Hindwing a little more angled than in most of the group, 1st median shortly or scarcely stalked. Costa Rica: Orosi, 1200 m (A. H. FASSL), a few ♂♂; type in coll. PROUT.

R. conflua Warr. (4 b) has the markings more mixed with vinaceous than in *exertata* and *radiolinea*, more definitely formed into bands, the crown of the head also partaking of this colour. Hindwing with 1st median separate. S.E. and E. Peru, the type from Santo Domingo, Carabaya.

R. pulverata Dogn. (5 c). Colouring as in *conflua*, but with the markings differently disposed: ante-median of forewing more slender, of hindwing broken, a broad anterior suffusion from cell-spot of forewing outward. 1st median of hindwing about connate. E. Colombia, 500—800 m. Also known from Ecuador.

R. oppleta Warr. (4 b). Markings rather darker, still more extended, the outer band of the hindwing reaching the distal margin anteriorly and posteriorly, leaving only a quite narrow green streak between the 1st radial and 1st median. Smaller, the ♀♀ reaching the size of the ♂♂ of the two preceding species. 1st median of hindwing about connate, varying a little. S.E. Peru. More recently obtained by FASSL on the Upper Rio Negro, E. Colombia.

lafayaria-group.

Abdomen above predominantly red-brown, usually with conspicuous white spots. Hindwing rounded, its abdominal edge in part red-brown, the 1st median variable (just separate to shortly stalked). Both wings with red-brown markings, usually expanded into ornamental borders.

- mustela*. **R. mustela** Druce (5 c) was formerly referred to *Nemoria*, but the discovery of the ♀ has shown it to be a true *Racheospila*. Hindtibia with process. Abdomen without white spots. Wings thinly sealed, the rosy terminal line not or little expanded. In the type form the straight white lines are accompanied by reddish vein-dots, and these in the ♀ (here figured) expand into conspicuous marks at the hindmargin. Mexico and Costa Rica. — **vermiculata** Dogn. (= *monostigma* Prout) has the cell-spots of the forewing more strongly developed, the red marks which accompany the lines reduced or almost obsolete. Colombia.
- cara*. **R. cara** Dyar is said to differ from *mustela* (5 c) in having a purple postmedian line and white spots on the abdomen. Mexico: Zaeualpan.
- interlucens*. **R. interlucens** Schaus. Probably related to *astraea* (4 f), but the ♂ peetinations short; the ♀ with antenna not peetinate, 3rd joint of palpus shortish. Quite distinct from that species and from *astraeoides* (4 f) and *capysoides* (5 e) in the red-brown vein-dots which mark the lines. Costa Rica.
- zernyi*. **R. zernyi** sp. n. (4 h) is another subdiaphanous species which may best be assigned to this group, and likewise lacks expansions of the red terminal line, which is interrupted by white spots at the veins. The body, however, is quite as that of *roseilinearis* (3 i). Palpus rather short. Antennal peetinations at their longest scarcely over twice the diameter of the shaft. Hindtibia of the ♂ with strong pencil and shortish process. Very distinct in the thick and strongly sinuous lines. Underside with the markings shadowy. São Paulo: Alto da Serra, 29—30 October 1927 (Dr. H. ZERNY), type in Mus. Wien. A ♀ from the same locality (R. SPITZ) in Mus. Tring, closely similar to the type. A pretty and very distinct species which, with *roseilinearis* (3 i), perhaps connects the *albociliaris* (2 h) — with the *lafayaria*-group. As, however, the ♀ palpus is abnormally short for a *Racheospila*, it is possible that its affinities have not yet been found. 1st median of hindwing short-stalked (in *roseilinearis* well separate).
- trianteris*. **R. trianteris** sp. n. (4 d) introduces the true *lafayaria*-group, a number of closely allied species with rather heavily scaled palpus, a small red or brown crest supplanting, or superimposed upon, the 2nd white abdominal spot, bright green, prettily bordered wings, the forewing with white costal margin, altogether suggestive of the Old-World *Comibaena*, from which they differ chiefly in the short peetinations. *trianteris* is distinguished from most of the following by the indistinctness of the pale abdominal spots, the small cell-dots and the shape of the borders, notably the projection at the 3rd radial. Underside with the markings weakened, on the hindwing posteriorly obsolete. Face and part of palpus blackish. Peetinations scarcely longer than diameter of shaft. 1 ♂, taken by Dr. ZERNY with the preceding.
- sophrosyne*. **R. sophrosyne** sp. n. 34 mm. Peetinations almost as in short as in *trianteris*. Face not so dark, with a narrow green fringe above. Abdominal white spots 1 and 3 strong. Cell-dots quite small. Terminal spots different from those of *abornata* (4 b) in having fine yellowish edging proximally, the subapical of the forewing bounded anteriorly by the 1st subcostal, the posterior one on both wings small (about 1.5 mm wide), on hindwing not crossing the fold; all narrower beneath. Brazil: Rio, type ♂ in Mus. Brit.; Alto da Serra (R. SPITZ), a ♂ in Mus. Tring, with the markings rather broader, especially the apical of the forewing, which reaches 2.5 mm.
- semiornata*. **R. semiornata** Warr. differs from *trianteris* in the reddish face and palpus, rather less short peetinations and in the markings. The name-typical race, from Panama (also Costa Rica), differs from the new race here figured in being rather smaller, with the markings a little larger. In both races, the marginal markings are of a more uniform tone than in *trianteris* and (especially) *fallax*. — **abornata** subsp. nov. (4 b) differs as noted above. The ternal blotches beneath are weakened, but generally less so than in typical *semiornata*. Upper Rio Negro, E. Colombia, 800 m (A. H. FASSL), a few ♂♂. Type in coll. PROUT.
- diminuta*. **R. diminuta** Dogn. Similar to *spasma* (6 i) but rather smaller (30 mm). Abdomen similarly with only the anterior white dot. Wing-markings similarly disposed, but reduced in size; cell-dot punctiform; subapical of forewing not exceeding 2.5 mm in width, ternal not exceeding 3.5; on the hindwing the subapical hardly more than 2 mm at 1st radial, the anal reaching 3 mm at the 2nd median. Underside with the subapical spots well developed, that of the forewing as above, that of the hindwing reduced to 1.5 mm. Colombia: Popayan, 1 ♂. Specimens from Ecuador (Balzapamba and La Chima), the ♂♂ 26—28 mm, the ♀ 31, conform excellently to the description, except that — especially in the ♂♂ — the 3rd abdominal white spot is fully developed and the anal blotch of the hindwing slightly less broad. The ♀ has the blotches more purple than the ♂♂.
- spasma*. **R. spasma** Dogn. (6 i). Face and palpus brown-reddish. Terminal markings rather more extended than in *porcius* (4 e), differently coloured and formed; rather characteristic is the small terminal prong in cellule 2, attached at the posterior blotch. Colombia: San Antonio. — **oroyana** subsp. nov. has the markings somewhat more brightly coloured, the cell-spots less large, the blotch at the anal angle of hindwing also sometimes reduced. Carabaya, S. E. Peru: La Oroya, etc.; type in Mus. Tring.
- psittacina*. **R. psittacina** Prout (4 c). Face blackish, approaching that of *pelops* (4 d). Peetinations nearly as long as in *porcius*. Wings opaquer green, with the markings much darker, the posterior relatively reduced and more

rounded-edged, in the type not containing a light spot; apical of the hindwing also more rounded-edged than in the allies; cell-spot enlarged on the forewing only. E. Peru.

R. distinguenda Dogn. (4 c) combines the posterior markings of *fallax* with a subapical spot darker than that of *semiornata*; underside nearly as in typical *semiornata*. Colombia: Cañon de Tolima, Quindiu and Cauca. *distinguenda.*

R. fallax Warr. (5 b) differs from *semiornata* chiefly in its variegated terminal spots, which are strongly dark at their edges and along the veins, pale or whitish internally. Pectinations slightly shorter than in *semiornata*, but scarcely as in *trianteris* (4 c). The typical form is from S. E. Peru and reaches Bolivia. — **allotaxis** *allotaxis.* *subsp. nov.* (4 c) has the subapical blotch on both wings decidedly shallower, the posterior blotch of the forewing longer. Colombia: Muzo, 400—800 m (FASSEL), 5 ♂♂; type in coll. L. B. PROUT. — **cohibita** *subsp. (? sp.) nov.* (4 b). Face and palpus much more mixed with blackish. Cell-dots and terminal markings reduced, the apical much less mixed with white than in the other Colombian form, the tornal of both wings obsolete beneath. Upper Rio Negro, E. Colombia, 800 m (FASSEL), 3 ♂♂, 1 ♀; type in coll. L. B. PROUT. Differs from *distinguenda* (4 c) in the less rounded termen of the forewing and the less large, less dark apical markings. *cohibita.*

R. excelsa Dogn. (6 i) differs chiefly from *fallax cohibita* (4 b) in having the 2nd abdominal spot ochraceous-buff, scarcely crested, the apical patch of the hindwing divided into 3 small buff, red-brown-edged spots, the cell-spots somewhat larger, the subapical patch of the forewing dark, between the 4th and the 5th subcostal narrow, between this and the 2nd radial much broader. Colombia: Alto de las Cruces, Cali, 2200 m. *excelsa.*

R. luteifimbria Dogn. is also near *fallax*. Rather smaller. "Face yellow and brown." Palpus brown. Wings with the cell-dots above large, pale-centred; subapical spot quite narrow, only present between 5th subcostal and 2nd radial, tornal still smaller, yellow bordered with ferruginous brown. Underside with the subapical spots present. S. Colombia: Popayan. *luteifimbria.*

R. porcius Schaus (4 c) has the terminal markings much more extended than in *fallax*, cell-spot large on both wings. Face and palpus red-brown. Pectinations as long as in *semiornata*. Costa Rica (loc. typ.) and Panama. *porcius.*

R. pelops *sp. n.* (4 d) has nearly the coloration and structure of *porcius*. Pectinations a little shorter. Hindtibial process short. Very distinct in the nearly black face and palpus (except its base), small cell-dots reduced anterior border of forewing and especially in the long central projection of the border on both wings. I do not think it can be a form of *trianteris*, the only other of the group in which there is a central projection. Espiritu Santo, Brazil, 3 September 1920 (ZIKAN). Type in coll. SEITZ. *pelops.*

R. syncrasis Prout (= *conflua* Warr., nom. praeocc.). Face and palpus red-brown. Cell-spots nearly as in *psittacina* (4 c), but that of the forewing placed at the posterior end of the discocellulars and preceded by a larger, greyer one; apical blotch larger than that of *psittacina*, crossing the 3rd radial, posterior one reduced, especially on hindwing. Underside characterized by the addition of a broad submarginal band on the forewing, faintly continued on the hindwing, where the anal spot is absent. E. Peru, with *psittacina*. *syncrasis.*

R. brunneilinea Warr. (4 d). Smaller. Face nearly as in *psittacina*, terminal blotches more irregular in shape. Unmistakable through the brown hindmarginal streaks, from which arise rows of brown vein-dots, representing the two lines. Described from S. E. Peru, known also from Colombia, Bolivia and the Amazons. *brunneilinea.*

R. lafayaria Dogn. (4 c). DOGNINS type from Loja has never been quite matched. The Tring Museum has, however, received 2 ♂♂ from Baeza, E. Ecuador (one of them here figured), which scarcely differ except in their rather smaller size. The smaller cell-spot and some differences in maculation separate it from *promontoria*, which is, however, probably only a race. — **promontoria** Warr. (5 g) has the posterior patch darkened behind the cell, separated from the paler distal part by a curved postmedian line. Carabaya. Also a series from Cochabamba (Bolivia) in the United States National Museum, where it bears the manuscript name of *lafayaria peruviana*. — **dilata** Prout (4 c) has the patch at middle of hindmargin a little darker still and considerably enlarged. E. Peru: Huancabamba (Cerro de Pasco) and Cushi. *lafayaria.* *promontoria.* *dilata.*

R. lugentiscripta Prout (5 g). Shorter-winged than the preceding and with the antennal pectinations rather shorter. All the markings darker, the central and posterior more extended. Colombia. — **dubia** Prout, founded on a single ♂ from Intaj, Ecuador, has the markings rather more red (though still much darker than in *dilata* [4c]), on the forewing formed as in *lugentiscripta*, on the hindwing above with the anal blotch extended along abdominal margin to $\frac{1}{3}$ from base, beneath entirely wanting. *lugentiscripta.* *dubia.*

R. latimarginaria Mssn. (5 i) does not fall quite naturally into either of our groups, but may best be placed here. Palpus similar. Pectinations short. Hindtibial process very short. Abdominal maculation very slight, only with attention whitish spots are discernible on first 2 segments. Underside pale, with indefinite subapical shading. Peru: Pucatanambo to Rio Negro (Amazonas), only the type ♂ known. Possibly a *Phrudocentra*. *latimarginaria.*

B. Antennal pectinations in the ♂ long, costal vein of hindwing closely appressed to (commonly anastomosing slightly with) subcostal, abdomen with (nearly always white) bosses or rudimentary crests (only wanting in some forms of *herbaria*).

- leucoceraria.* **R. leucoceraria** *Snell.* (4 d) is the only known species of the group in which the dark border forms a strong spot at the hind angle of the forewing but is otherwise almost entirely unexpanded. Colombia, chiefly in the Bogota district.
- suppomposa.* **R. suppomposa** *Prout* differs from *pomposa* (4 h) in being rather brighter green, the cell-spots reduced to small dots, the red terminal line on both wings swelling slightly at its posterior end, but not forming any large spot as in *leucoceraria*. N. Argentina.
- pomposa.* **R. pomposa** *Dogn.* (= *diaphana* *Warr.*) (4 h). As thinly scaled as *leucoceraria*, the cell-spots rather large but not ocellated, the terminal line almost simple, only expanding slightly midway between the veins. 3rd joint of palpus slightly longer than in *suppomposa*. Ecuador (type) and Peru. — **indecora** *Prout*, described from Mexico, is smaller, the cell-dots nearly as in *suppomposa*, the terminal line scarcely expanding between the veins. Known also from Nicaragua.
- irregularia.* **R. irregularia** *Barnes & McD.* is unknown to me, but may be placed here. Expanse 19 mm. Brighter green than the preceding, costa of forewing narrowly white; antemedian line with prominent angle in submedian fold, postmedian very irregular and strongly dentate, strongly outbent at 3rd radial to 1st median, then sharply inbent; cell-dots small; the red terminal line interrupted by white dots at veins. Texas: Brownsville, founded on 2 ♀♀.
- venustula.* **R. venustula** *Dogn.* (4 e). Smaller than *leucoceraria* (4 d), with smaller cell-spots (or dots) and brighter red terminal markings, which form a smaller posterior expansion on the forewing but also expand a little towards the apex of the hindwing. Described from Ecuador, distributed from Colombia to Peru and to French Guiana and the Lower Amazon.
- isclata.* **R. isolata** *Warr.* (4 e), also with small cell-dots, is characterized by the small triangular midterminal spots. Grenada; also received from Porto Rico, St. Vincent and Bequia Island, off St. Vincent. Possibly a very extreme form of the following.
- gerularia.* **R. gerularia** *Hb.* (= *ocellata* *Stoll*, nom. praeocc.) (4 d) is variable but easily known by the large terminal blotches, 2 on the fore-, 3 on the hindwing. In the type, the cell-marks are punctiform. — In ab. **marginiplaga** *Walk.* (= *rufidorsaria* *Snell.*, *jucunda* *Feld.*, *xysteraria* *Hulst*) the cell-marks (at least on the forewing) are enlarged into spots, in the most extreme development quite large and with pale pupils. Described from Surinam, this species is distributed everywhere from Central America, Florida and the West Indies to S. E. Brazil.
- decorata.* **R. decorata** *Warr.* (4 e) has the midterminal blotch of the forewing smaller or, if elongate, less rounded, definitely bipartite, the green ground-colour cutting it at its end or even as far as to the terminal line; the midterminal blotch of the hindwing wanting or quite short and not definitely separated from the apical. Colombia, Ecuador (type) and Peru.
- dependens.* **R. dependens** is another variable species, best recognized by its large cell-spots, that of the forewing nearly always joined to the costal border; this latter is very characteristic, broader than in the other species and emitting a triangular or comma-shaped mark at the commencement of the postmedian line. — **megastigma** *Warr.*, from Costa Rica, has the purple markings rather dark and dull, the terminal line of the forewing forming a small or moderate expansion between the radials. — **tumefacta** *Prout* (4 d) is very similar to *megastigma*, perhaps not always rigidly differentiable; purple markings slightly less dark; cell-spot of forewing generally narrower and more angular; borders more irregular in approaching the tornal expansion. Colombia; similar forms also in Venezuela and Ecuador. — **dependens** *Warr.* (4 e) has the borders more reddish than in *megastigma*, fairly broad but with little (no central) expansion. E. and S. E. Peru, up to 6000 feet; also in E. Bolivia. — **independens** *Prout* has all the purple-red markings somewhat reduced, so that the cell-spot of the forewing is less strongly confluent with the costal streak, sometimes entirely free. S. E. Peru: Oconeque, Carabaya, 7000 feet.
- bidentifera.* **R. bidentifera** *Warr.* (4 e). Borders still darker, but bisected by a broad, pale violet line; border of hindwing of nearly uniform breadth, that of forewing very narrow where it meets the costal streak, gradually widening; cell-spot confluent with a triangular projection from costa. Colombia (type), E. Ecuador and Peru.
- atraps.* **R. atraps** *Druce* (5 c), in its typical form from Panama, is only known to me in 3 ♀♀. These are small (18—23 mm), with small cell-dots, the red at costa of forewing only well-developed basally, the terminal marking between the radials small, almost cleft by the 2nd radial, the posterior patch indented at the 2nd

median. Distinguishable from all forms of *expulsata* (4 e) by the absence of white terminal line. — *trujilloi* *subsp. trujilloi*, *nov.* is rather larger (♀ 24—28 mm), all the reddish markings enlarged, particularly the terminal ones between the radials, which form a solid projecting blotch often reaching almost 2 mm, as in rather extreme *megastigma*. Mexico: Jalapa (TRUJILLO) and Orizaba, the type and paratype ♀♀ recorded by DRUCE as “? *jucunda* Feld.”

R. magnaria *Bastelb.* (5 f). Near *trujilloi* but still larger, the projection from the terminal line equally *magnaria*, well developed, also noticeable on the hindwing; cell-dots small. Jalapa, only the type ♀ known; if it proves a giant form of *atrapes*, the name of *trujilloi* must sink to it.

R. expulsata *Walk.* (= *intensa* *Warr.*) (4 e) has a white terminal line outside the dull purple border, *expulsata*; cut by purple dots at the veins and followed by a slender purple line at base of fringe. Amazons (loc. typ.), Guianas, Venezuela, Colombia to Bolivia, Espiritu Santo. — **atrapoides** *subsp. nov.* (4 e) with the border of *atrapoides*. the forewing forming a small but well-marked projection in the middle, seems to be a constant local race in Central America and perhaps Florida, but occasional aberrations from other localities, especially Colombia, are closely similar. Type from ~~Jalapa~~, Mexico, in Mus. Tring. Orizaba

R. tenuimargo *Warr.* (4 f). Borders much narrower than in *expulsata*, somewhat more reddish, the *tenuimargo*. interrupted white terminal line much slighter (sometimes scarcely noticeable), more violet-tinged, the red line at base of fringe feeble; fringes, on the other hand, definitely spotted with red opposite the veins. Venezuela and British Guiana to Parana, the type from the Organ Mountains. — **lineimargo** *form. nov.* (= *sigillaria* *auctt.*, *lineimargo*. *nec Guen.*) (4 h) is a dimorph, or perhaps species, with the reddish border reduced to a mere line, not even expanded at the tornus, the violet-white markings and reddish fringe-line lost; fringe pure white, mixed with red distally and slenderly marked with red opposite the veins. Found in most localities with *tenuimargo*, also in Central America, the West Indies and Bolivia. Type ♂ from São Paulo in coll. Tring Mus.

R. pulchrifimbria *Warr.* (4 h). On an average smaller than *lineimargo*, brighter green, the red costal *pulchrifimbria*. line complete, marked with white dashes at the commencement of the lines, the white marginal spots broader, encroaching strongly on to the wings; lines and cell-dots almost or entirely obsolete. ♀ palpus with 3rd joint about as long as 2nd (in the preceding species scarcely over 1/2); ♂ hindtibia, as in *tenuimargo*, with terminal process as long as 1st tarsal joint; hindwing with costal anastomosing more decidedly with subcostal, almost as in *Synchlora*. Common in the Guianas, also known from Honduras, Gorgona Island (off Colombia), Colombia, Venezuela, the Amazon, Ecuador, Peru and even São Paulo.

R. superaddita *Prout* (4 e). Structurally close to *pulchrifimbria*. Abdomen with the dorsal ornamentation *super-* not (as in that) continuing to the anal extremity. Wings less strongly rounded, the hindwing appreciably bent *addita*. at the 3rd radial. Red costal line without white dashes; cell-dots and white lines well visible; terminal white spots less broad, with only a narrow part placed on the wing. Mexico, Guatemala, Colombia (loc. typ.), Venezuela, Trinidad, the Guianas, the Amazon, Ecuador, Bolivia and Matto Grosso.

R. rufilineata *Warr.* (= *undulosa* *Kaye*) (4 h) has the zigzag white lines and almost the hindwing *rufilineata*. venation of a *Synchlora*, to which genus it could easily be transferred; but has retained the dark cell-dots and generally (though slenderly) the red terminal line of *Racheospila*, the white fringe weakly red-spotted. Hind-tibial process of ♂ moderate. Palpus of ♀ with 3rd joint almost as long as 2nd. Very widely distributed, commonest in the Guianas. — **albimargo** *form. nov.*, apparently constituting a local race at Muzo, Colombia, has the *albimargo*. terminal line white instead of red; the red-bordered abdominal spots distinguish it from *concinaria*.

R. concinnaria *Schaus* is a further link towards *Synchlora* and differs from *albimargo* in having the *con-* white crests continuous, forming a long dorsal ridge. Costa Rica, in effect a *Synchlora* with dark cell-dot. *cinnaria*.

R. cupedinaria *Grote* (= *louisia* *Hulst*, *cupidenaria* *Dyar*) (5 f). Size of *pulchrifimbria* (4 h). Brighter, more *cupe-* yellowish green with redder margins, recalling *Eucrostes* in colouring. Cell-dots red, less minute than in *pulchri-* *dinaria*. *fimbria*; borders shaped somewhat as in *expulsata*, the costal with very slight projections at the beginning of the (scarcely discernible) lines. Abdomen above red, with only one or two white spots. Hindtibia of ♂ without terminal process. Florida (type), the Bahamas, Porto Rico, St. Thomas and St. Kitts.

R. ephippiaria *Möschl.* (4 f) agrees in structure with *herbaria*, of which I should have supposed it a race *ephip-* but that I have seen a ♂ from Jamaica (unfortunately much wasted) which appears close to the Cuban forms. *piaria*. Face deep red. Further distinguished by the strong red subcostal and terminal lines and red-marked fringes. Jamaica.

R. herbaria seems to embrace a number of races from the West Indies and Florida; at least they have not been differentiated in structure. Hindtibia of ♂ (always?) with slight hair-pencil, but without terminal process. Anastomosis of costal of hindwing often almost as strong as in *Synchlora*; the forms in which nearly all the red markings are obsolete thus provide transitions between the two genera. — **hulstiana** *Dyar* is said *hulstiana*. to differ from the name-type in having the costal edge of forewing narrowly underlined with red, the fringes partly reddened, thus intermediate towards *ephippiaria*. Florida. Larva green, granulated with white; head

- rounded; segments 1—5 of abdomen with angular subventral projections, tubercle enlarged, with many little spines "to which various objects adhere". On *Lantana camara* (DYAR). — **herbaria** *F.* (= *sitellaria* *Guen.*, *congruata* *Walk.*, *indeclararia* *Walk.*, *croceofimbriata* *H.-Sch.*, *attendaria* *Möschl.*) (4 f). Face green, usually edged with red. The white costal edge of forewing only distinctly reddened at base; the red terminal line and dashes on fringe fine, often rudimentary; abdomen green, with white red-ringed spots which are larger in the ♀. FABRICIUS, whose type was from the West Indies (not exactly localised) did not notice any red markings, hence his form has been identified with *intacta*; but AURIVILLIUS, who has seen the type, refers it here, and the "black" cell-dots confirm him. Cuba, Haiti, Porto Rico, ? Santa Lucia. — **bonhotei** *Prout* is smaller, the white abdominal spots reduced in size, set on a continuous but narrow crimson band. Bahamas. — **dorsuaria** *Prout*, from Antigua, is larger (♂ 23 mm), face wholly green, abdominal spots as in *herbaria* or better developed, cell-dots minute, terminal red line wanting. — **intacta** *Warr.* (4 h) has lost all the red colouring in the ♂, except traces of red band on vertex of head and the excessively minute cell-dots, but the ♀ differs little from that of *herbaria*, except that the cell-dots are almost entirely obsolete. Dominica. — **sanctae-crucis** *subsp. nov.* Sexual dimorphism nearly as strong as in *intacta*. ♂ quite similar to that, but with (small) white posterior spots on the 3rd, 4th and 5th abdominal tergites; ♀ without red on face and without red terminal line, otherwise as that of *herbaria*. Ste. Croix (Santa Cruz), 1894 (HEDEMANN), a fine pair in Mus. Wien.
- astracoides.** **R. astraeoides** *Warr.* (4 f) has the hindwing marked nearly as in *astraea*, but is structurally related to *tenuimargo*. Costa Rica to Bolivia and Brazil, described from Ecuador.
- capysoides.** **R. capysoides** *Schaus* (5 c) is larger than *astraeoides* (4 f), fringes without the pure white marks, hindwing with a more distinct cell-spot and with the patch at abdominal margin a little broader and less dark, lacking the slender posterior extension to anal angle. Systematic position somewhat doubtful; I have no material for study. Mexico.
- C. Antennal pectinations moderate, almost equally developed in both sexes, costal vein of hindwing not anastomosing.
- astraea.** **R. astraea** *Druce* (4 f) cannot be confused with any other known species. Hindtibial pencil and terminal process in ♂ strong. Palpus in ♀ with 3rd joint moderately elongate. Mexico (loc. typ.) to Colombia.

4. Genus: **Dryadopsis** *Warr.*

A superfluous genus, erected for those species of the *Blechroma* group of *Racheospila* in which the ♂ antenna is not fully pectinate but merely dentate, with tufts of short cilia. But the last three species are in a measure transitional.

- morbilli-ata.** **D. morbilliata** *Feld.* (5 c). Rather larger than *pulveraria* (4 i), with better defined dark bands, dark basal patch, cell-dot on hindwing and dark terminal line. "Brazil", only the type ♂ known.
- pulveraria.** **D. pulveraria** *Schaus* (4 i) is the commonest *Dryadopsis*, little variable except in size. From the somewhat similar *Racheospila conspersa* (4 a) it may be known at once by the dark vertex and the white markings which accompany the postmedian line. Hindtibia of ♂ with hair-pencil but without process. Colombia to British Guiana, the Amazons, Peru and Bolivia, the type locality being the last-named.
- adjunctaria.** **D. adjunctaria** *Dyar.* Expanse 24 mm. "Similar to *D. pulveraria* (4 i), smaller, the discal mark closely approximated to the inner line; costa less broadly strigose in brown; submarginal rows of dots punctiform on both wings." Founded on a ♂ from Trinidad River, Panama Canal zone. According to a note which I made on the type, the antenna has pectinations almost as long as diameter of shaft and it would be "perhaps better regarded as a tiny *Racheospila* (*Blechroma*)".
- characta.** **D. characta** *sp. n.* (6 k) may possibly prove, on comparison, a form of *adjunctaria*, as the antennal teeth of the inner side of the shaft are, from near the base to about the middle, developed into rudimentary pectinations almost as quoted above. Larger (29—30 mm). Hindtibia of ♂ with moderate terminal process. Scheme of markings much as in *pulveraria* (4 i) but with the dark lines stronger, simpler (not founded on whitish lunules), the postmedian more highly zig-zag but in its general course much more nearly parallel with distal margin; arising in a costal spot about 3 mm from apex, it is four times deeply incurved (in cellules 6, 4, 2 and at the fold), from 2nd median to hindmargin accompanied proximally by a nearly parallel line. E. Colombia: Upper Rio Negro, 800 m. (FASSEL), type ♂ in coll. JOICEY. Bolivia (GERMAIN) a sharply marked ♂ in Mus. Brit.
- leucaspis.** **D. leucaspis** *sp. n.* (4 i). In structure and markings similar to the preceding. Abdominal maculation very different, the 3rd and 4th segments (sometimes also the 5th) fuscous dorsally, the 3rd bearing a large, the 4th a small white spot. Colombia: Muzo, 400—800 m. (FASSEL), 3 ♂♂, the type in coll. PROUT. Costa Rica: Sixola River (SCHAUS), a ♀ in coll. Tring Mus.

4. Genus: **Synchlora** Guen.

General characters of *Racheospila*, the ♂ antennal pectinations long. ♀ with 3rd joint of palpus elongate. Abdomen dorsally with white spots or line or entirely unornamented. Wings delicate, margins smooth; hindwing with costal always anastomosing with subcostal, often strongly. Larva, so far as known, with spined prominences to which are attached withered portions of the foodplant.

Probably another superfluous genus, evidently intergrading with our section B of *Racheospila*. It is, however, still uncertain whether it may not be better to remove the latter group hither than to sink *Synchlora*. The absence of the cell-dots and of all red coloration from the wings and abdomen of the present group, though producing a distinct impression, is in any case not sufficient for generic separation.

S. delicatula Dogn. is unknown to me but I was informed by its author that the hindwing venation *delicatula*. brings it here. A very small, delicate green species, distinguished from all the others by the absence of definite white lines, though the wings are marked with copious white strigulae; a subterminal line better indicated than any other markings. St. Laurent du Maroni, French Guiana, 1 ♂.

S. denticularia Walk. (= *excurvaria* Pack.) (4 k) differs from the other dentate-lined species in having the face green. Otherwise closely similar to *frondaria* (4 k). E. and S. United States and Bermuda. Larva light brown, shaded with black, surface granular and with reddish points and raised spots; clothes itself with fragments of the foodplant. On Solidago, Vervian, Rudbeckia, etc. — **albicostaria** H.-Sch. is possibly synonymous, but seems to have the lines weaker, chiefly developed as dots on the veins. Described from Cuba, known also from Porto Rico and the Bahamas. — **pallida** Warr., from Bonaire (Leeward Is.), appears to be a pale form of the same species, but the type is not fresh enough to study satisfactorily. WARREN calls its face "ochreous green"; if this is really faded from red, it will belong with *frondaria*.

S. frondaria Guen. (= *minuata* Walk.) (4 k). Face red. Lines zigzag, in weakly marked specimens appearing subpunctiform. The most widely distributed *Synchlora*, extending from Mexico to Argentina. The type was from Cayenne. — **avidaria** Pearsall, described as being very near *denticularia* in size, shape and colour, is probably synonymous with *frondaria*, or at most a North American race, of a bright pea-green colour. Its very wide range in the southern States (S. California, Arizona, Florida) strongly points to this conclusion, and the few examples which I have seen (including one from the type locality, Palmerlee) show no tangible distinction.

S. liquoraria Guen. (= *tricoloraria* Pack.) (4 k). On an average larger than *frondaria* and of a slightly more yellowish green, the lines less sinuous and less denticulate, yet not so smooth as in *rubrifrontaria*. Described from California, but extending eastward to Colorado and northward to British Columbia and Alberta.

S. rubrifrontaria Pack. (= *rufifrontaria* Gppbg.) (4 l) has, like the two preceding, a red face, but is very distinct from *frondaria* in the non-dentate white lines. Inhabits the eastern States, described from New York. According to BLACKMORE also in British Columbia.

S. aerata F. (= *glaucaria* Guen., *mimicata* Walk., *rubivora* Riley, *albolineata* Pack., *gracilaria* Pack., *aerata* rubivoraria Pack.) (4 k). Face green. Lines not, or only very faintly denticulate, hence impossible to confuse with *denticularia*. A common species in eastern North America, variable in size. The early stages have been fully described by DYAR ("Psyche", IX. 93). Head of larva rounded, somewhat bilobed. Body brownish or blackish grey, granulated with white; tubercles in part produced, these or the setae sticky, allowing the larva to cover itself protectively with fragments of the foodplant. On raspberry (RILEY and TREAT) and many low plants, especially the flowers and fruits; a succession of broods. — **flavilineata** Riley, said to be commoner than *rubivora* and with a similar larva but feeding on *Compositae*, must I think be an aberration, or more probably founded on discoloured examples. "Somewhat larger, transverse lines broader, yellow or fulvous instead of white, and dividing the wings into three more nearly equal parts; outer lines running almost straight across the wings; inner on the forewing much arcuated towards base near the costa, on the hindwing subobsolete; a broad yellow costal and posterior border." Boston is the only locality specified.

S. dilucida Warr. and the two following species form a separate group of the genus, with rather more robust wings and almost straight lines. The anastomosis of the costal of the hindwing is variable, but generally only short. *dilucida* is the rarest of the three and scarcely differs from *bistriata* (4 k) except in the green face. Generally rather small. S. E. Brazil.

S. bistriata Warr. (4 k). Face red, the lower extremity white or white-mixed. The course of the lines, which are generally rather slender, can be seen from our figure. Underside similar but rather paler. S. E. Brazil.

S. apicata Warr. (5 f). Rather variable in size, often — at least in the ♀ — a good deal larger than *bistriata*. Face similar. Lines generally broader; postmedian more distally placed, on the forewing commencing quite near the apex, on the hindwing ending close to the anal angle; veins in distal area white. The red-brown apical dot, from which the species was named, is inconstant. S. E. and S. Brazil and Argentina.

5. Genus: **Thrasychlora** *gen. nov.*

Face large, rounded, rather prominent. Palpus in both sexes short, smooth-scaled, terminal joint very small, pointed. Antenna of ♂ very shortly pectinate. Hindtibia with 4 spurs; in ♂ dilated, with pencil and terminal process. Wings densely scaled; venation about as in *Racheospila*; 1st subcostal of forewing anastomosing with costal. Hindwing bluntly angled in the middle; 1st subcostal about connate with 3rd radial. Erected for one species (*minor* Warr., described as a *Melochlora*) which has been assigned to *Racheospila* but differs essentially in the structure of the head.

minor. **T. minor** Warr. (4 h). Easily recognized by the structural characters. Colouring of a *Phrudocentra*, but smaller and with broader hindwing than the *pupillata*-group, a pale distal margin as in the quite differently shaped *taediata* group. S. E. Peru. The JOICEY collection contains a ♀ from Orosi, Costa Rica, which is larger but agrees well.

6. Genus: **Annemoria** *Pack.*

This genus has remained a puzzle to systematists, as the genotype is in such deplorable condition that a proper study of it is impossible. PACKARD'S diagnosis is drawn up by comparison with *Chlorochlamys*, with which probably it has nothing to do, and is inadequate; in particular, the important venation of the hindwing — as usual with this author — is ignored. Palpus stout, 3rd joint distinct, thick, rounded. Antenna (♂) pectinate to near the end, the longest branches only about twice the diameter of the shaft. Hindtibia of ♂ swollen, with 4 strong spurs. Forewing with 1st subcostal anastomosing with costal.

unitaria. **A. unitaria** *Pack.* "Palpi pink; front red; vertex white and antennae white above; abdomen white; thorax and wings deep pea-green. Extreme costal edge white. A single white line crosses both wings, just beyond the middle; on the primaries it is straight; on the hindwings well curved. Fringe white, on the outer edge pinkish. Two anterior pairs of legs reddish." Length of body 11.4 mm; of forewing 13.45 mm; expanse of wings almost 28 mm. Nevada, 1 ♂. The type has since lost its head, hindwings and abdomen. It occurs to me that it may be a *Nemoria*, but Mr. PEARSALL, who saw the type, did not make this suggestion. A Mexican "*unitaria*" (DYAR det.) is perhaps *Cheteoscelis naenia* (5 f).

7. Genus: **Chlorosea** *Pack.*

A genus of three closely related North American species which differ from *Nemoria* and *Racheospila* chiefly in that the hindtibia in both sexes has only two spurs; that of the ♂ is not dilated. Palpus moderate, the 3rd joint in the ♀ not elongate. Antenna of ♂ shortly pectinate, of ♀ dentate; Hindwing with 1st median not stalked with 3rd radial; more white-mixed than forewing.

nevadaria. **Ch. nevadaria** *Pack.* (4 i) is a large species with no reddish colour on the hindwing, but with gay rosy and yellow maculation on the anterior part of the abdomen. Rocky Mountains to S. California and northward into the south of British Columbia and of Vancouver Island.

proutaria. **Ch. proutaria** *Pears.*, from Colorado (loc. typ.) and Utah is very similar to *nevadaria* (4 i), but lacks the dorsal ornamentation of the abdomen.

roseitacta. **Ch. roseitacta** *Prout* (4 i), from Arizona, is readily recognizable by the rosy markings on the abdominal margin of the hindwing. Typically it is smaller than the other species, but specimens from Colorado equal them in size.

8. Genus: **Cheteoscelis** *Prout.*

Perhaps a derivative of *Chlorosea*, with which it agrees in the hindtibial armature. Antennal pectinations of ♂ long. The hindwing, which is still whiter than in *Chlorosea*, differs essentially in venation, the costal anastomosing strongly with the subcostal. South-western States and Mexico.

bistriaria. **Ch. bistriaria** *Pack.* (= *undinaria* *Streck.*) (4 k), the type of the genus, was founded on a ♂ from Nevada, but is not rare also in Colorado and Utah, from which latter State we figure a ♂. Forewing moderately bright green, with some white strigulae, the white lines strong. The larva appears from an account by Hulst (if his determination is correct) to be similar to those of *Nemoria*. On *Solidago*.

orthogramma. **Ch. orthogramma** *Dyar* (5 f) is close to *bistriaria* (4 k), the forewing of a somewhat more vivid green, with broader and perhaps straighter lines. Mexico: Zacualpan.

naenia. **Ch. naenia** *Druce* (5 f) is also closely related to *bistriaria*, but more weakly marked, thus not liable to be confounded with the other Mexican *Cheteoscelis*. Jalapa (type) and Las Vigas.

pectinaria. **Ch. pectinaria** *Grossb.* is smaller than *bistriaria* (4 k), the ♀ antenna pectinate (shortly) to $\frac{2}{3}$, the lines of the forewing narrower, the hindwing more greenish, with antemedian line present and postmedian denticulate. Arizona. Also known from California.

9. Genus: **Paromphacodes** Warr.

Pretty distinct in habitus, somewhat reminiscent of the African genus *Omphax* (Vol. 16, p. 34, pl. 4 b, c), but with not many outstanding generic characters. The chief are the very short palpus (also as in *Omphax*) and the rather strong anastomosis of the 1st subcostal of the forewing with the 2nd, as well as with the costal. Antennal pectinations of the ♂ moderately long. Hindtibia of ♂ not dilated, all spurs present. Hindwing with costal approximated to subcostal for a considerable distance. Both wings with 1st median well before end of cell. Only one species (Brazilian) really belongs here, though a second has been provisionally added.

P. rubrimargo Warr. (4 i). Unmistakable in shape, the entirely unmarked forewing, predominantly *rubrimargo*. white hindwing and bright rosy costal edge and proximal fringe-line of the forewing, the latter present, but only posteriorly, on the hindwing. S. E. Brazil.

P. (?) rubristellata Warr. differs structurally in the moderate (not short) palpus and superficially in *rubristellata*. the rather less extreme shape and in the presence on the forewing of red vein-dots indicating the lines, the outer strongly incurved so as to approach the inner at the 2nd median vein, an elongate rosy cell-mark and a rosy terminal line. Hindwing and fringes white. Bogota, only the type known. In this, the 2nd subcostal of the forewing anastomoses with the 1st subcostal before the latter separates from the costal.

10. Genus: **Pyrochlora** Warr.

Face rather less smooth than in most *Hemitheinae*. Palpus moderate, little roughened, 3rd joint in ♂ quite small, in ♀ little elongate. Antenna pectinate in both sexes. Hindtibia with all spurs, in the ♂ with pencil and very short terminal process. Hindwing with termen scarcely rounded, tornus rather acute. Neotropical. Only two species known, different from *Racheospila* in shape and maculation and in the ♀ antenna.

P. rhanis Cram. (= *rhanisaria* Stoll) (4 l). This well-known species was originally figured from Surinam, *rhanis*. but is distributed from Guatemala to Rio de Janeiro. Not particularly variable, nor apparently separable into races.

P. majorcula Dyar (4 l) is generally larger, the white lunule of the postmedian at the fold enlarged into *majorcula*. a broad spot distally, also encroaching into the central area, etc. Hindwing broadly pale cinnamon-buff with the dark mottlings reduced, the terminal green borders contrasted. Cayenne and Para.

11. Genus: **Tachychlora** Prout.

Differs from *Pyrochlora* in having the face broader and smoother, nearly always white, the palpus shorter, the hindtibia not dilated, in both sexes with the proximal spurs extremely short or wanting, the terminal ones extremely unequal, the inner being very long, the outer short. Except in pattern, and generally shape, they have much in common with *Tachyphyle*, but the latter often has the ♀ antenna non-pectinate. Range: Mexico to Brazil.

T. amilletes sp. n. (4 k) has been determined in different collections as *subscripta* or as *lepidaria*. *amilletes*. From the former it differs very decidedly in the more concave termen of the forewing and narrower, less rounded hindwing, which moreover is paler, with much less clouding proximally and between the first lines, and has a narrower, more tapering, darker-mixed green distal border; from the latter, of which it may prove a race, in the maculation. Costa Rica and Colombia, the type from Orosi, Costa Rica, in coll. PROUT.

T. lepidaria Möschl. (5 c), from Surinam, is unknown to me. We reproduce MÖSCHLER'S figure, although *lepidaria*. this is evidently inexact in some details, at least in the presence of green patches on the hindwing. Appears different from *amilletes* in the more parallel lines of the forewing, more proximal and less zigzag postmedian of the hindwing and more broadly white posterior part of forewing beneath.

T. explicata sp. n. (4 l). Also close to *amilletes*. Posterior part of forewing a little paler, with the *explicata*. median dark line less bent. Hindwing rather fuller, termen appreciably bent behind middle; its buff part more whitish, less irrorated between the antemedian and median lines; postmedian rather nearer and more parallel to termen, much less inbent between radials 2 and 3 and much less incurved at fold; dark border scarcely reaching beyond the 1st median, the prong just before its end looking longer. Lower Amazon: Taperinha near Santarem, 21—30 June and 21—31 July 1927 (Dr. H. ZERNY), type ♂ in Mus Wien, paratype ♂ in coll. L. B. PROUT, kindly presented by the discoverer.

T. subscripta Warr. (4 l). Hindtibia of ♂, as in the preceding group, with hair-pencil and generally *subscripta*. traces of the proximal spurs. Median band of hindwing more solid than in the three preceding, almost obliterating the cell-mark, border broader, more extended green; underside more weakly marked. Venezuela (type), Ecuador and Bolivia. Often the hindwing is suffused in almost the entire basal area.

- clita*. **T. clita** *sp. n.* (41) ♀, 35 mm. In size, shape and colouring similar to *subscripta*, but with many differences. Palpus very short, blackish. Tongue slight. Hindtibia without proximal spurs. Forewing with apex slightly less falcate; green area more restricted; grey area becoming more flesh-coloured outside the postmedian line, which is scarcely oblique outward behind fold. Hindwing with cell longer, median band more brownish, veins on pale area a little darkened, postmedian line brownish, comparatively regular, though deeply lunulate, the green border broadening a little posteriorly. Black cell-dots well developed above and beneath. Brazil: Blumenau, 1885 (HETSCHKO), type in Mus. Wien. Novo Friburgo, 1873 (SEMPER), paratype (smaller) in coll. L. B. PROUT, presented by the Museum.
- flavidisca*. **T. flavidisca** Warr. (41). Smaller than *lepidaria*. Hindwing with a dark basal patch, the succeeding space yellowish, the next line thick, black, irregular, absorbing the cell-spot; distal area more or less suffused with dull Indian purple. Carabaya, S. E. Peru. Also known from E. Colombia.
- prasia*. **T. prasia** Prout is close to *flavicomma* (41), forewing slightly narrower, rather duller, the two lines on hindmargin rather far apart, with stronger rosy suffusions between them, hindwing with the median line red, with only a few black scales and throwing out strong distal projections on the first two radials as far as the diffuse reddish postmedian line; hindwing beneath with the yellow patch less conspicuous, and with an elongate blackish cell-mark. Carabaya.
- flavicomma*. **T. flavicomma** Warr. (41) may be distinguished by the width of the yellow patch of the hindwing, its sharp black distal boundary-line and the red-brown suffusion beyond. Described from Surinam, but found also on the Amazons and in S. E. Peru. Hindtibia with terminal spurs only.
- uricha*. **T. uricha** Kaye (4 k), to which *flavicomma* was formerly sunk, seems to be a separate species, distinguishable by the obsolescence of the black median line of the hindwing, the presence of yellow maculation between the red-and-grey shading and the postmedian line, and on the forewing by the absence of the reddish posterior maculation. Trinidad (type), also with *flavicomma* in Surinam and the Amazon country.
- baeogonia*. **T. baeogonia** *sp. n.* (5 d). Smaller than the two preceding and rather paler, the distal borders, as well as the fringes, whitish; hindwing bluntly angled. Forewing with apex acute; no markings except the minute but rather sharp cell-dot. Hindwing with the basal green patch somewhat extended, perhaps as in *prasia*, the yellow consequently narrowed; median band well mixed with red, almost or quite reaching the postmedian line except posteriorly. E. Colombia: Upper Rio Negro, 800 m (FASSEL), 2 ♂♂. Type in coll. PROUT.
- intrapunctata*. **T. intrapunctata** *sp. n.* (41) differs from *silena*, of which it has been supposed a form, in having the fringe of the forewing more strongly darkened at its posterior end, the median line of the hindwing anteriorly recalling that of *flavidisca* but red, the postmedian projecting a long, acute inward tooth between the 2nd and 3rd radials and accompanied distally by reddish and grey shading, a small black dot in cell behind cell-fold. S. E. Peru: La Oroya, 3100 feet, 9 ♂♂ in Mus. Tring, 1 ♂ in Mus. Brit.
- silena*. **T. silena** Schaus (5 d). Similar to *prasia*, but with the postmedian line of the hindwing more concise and other differences. S. E. Brazil.
- phacozona*. **T. phaeozona** *sp. n.* 27 mm. Similar to a large *silena* (5 d), forewing perhaps slightly broader. Forewing posteriorly (except at termen) and hindwing between the postmedian and a narrow green terminal band suffused with brown (possibly due to discoloration?). Lines of forewing darker, nearer together, strongly sinuous, closely approximated at fold. Hindwing with basal green patch less small than in *silena*, a dark purple-grey band between the median and postmedian, about 2 mm wide anteriorly, 3 mm posteriorly. Alto da Serra, Santos, 800 m (E. D. JONES), 1 ♂ in Mus. Brit. I do not think this can be an extraordinary aberration of *silena*.
- pretiosa*. **T. pretiosa** *Th.-Mieg* (5 e) is a beautiful and strikingly distinct species with the wings predominantly white. Shape about as in *lepidaria* (5 c). Very characteristic is the hindwing, with small green basal patch and very large, long-oval postmedian green patch about 4 mm wide, and 8 mm long, arising close to costa and cut by SC² and R¹ which are white. Forewing green at base (bounded by a broad S-shaped white antemedian), at apex and most of termen, and with green subcostal and subterminal lines, the centre of the wing broadly white.
- insignis*. Both wings with black cell-dot. Santa Catharina (probably Joinville), 1 ♂. — ab. **insignis** *Dogn.* seems, from the description, to have the centre of the forewing more suffused with green but may probably prove, on comparison, to be an absolute synonym. Joinville, 1 ♂. Unfortunately the ♀ is unknown; possibly a *Tachyphyle*, as DOGNIN assumes.
- flora*. **T. flora** *E. D. Jones* (5 d). Apex less acute than in the other species, face less white (largely green). The large rosy patch on the ample yellow subbasal area is quite distinctive. Hindtibia with 2 spurs. S. E. Brazil: Castro, Parana.

12. Genus: **Tachyphyle** Bull.

Antenna of ♂ pectinate, of ♀ typically simple, but in several species pectinate. Hindtibia with the proximal spurs slight or wanting, the terminal very unequal; ♂ with or without hair-pencil. Forewing with

apex sometimes subfalcate. Hindwing with humeral angle more expanded than in *Tachychlora*, the frenulum of the ♀ wanting or vestigial; abdominal margin long, distal margin also in the more typical species long and straightish; coloration generally simple. Of the early stages little is known; see *T. pigraria* and *olivia*. Exclusively Neotropical.

T. oubrica Dyar. "Green, the markings faint; discal dots minute, black; outer line pale, dark within, *oubrica*. much as in *bryata* Feld (6 h). Hindwing with a large square light purple patch at anal angle, reaching from outer line to margin. Expanse 22 mm." Panama Canal Zone: Trinidad River, March 1912, 1 ♂.

T. pigraria Wichers & Scheller (5 d) has never been matched in my experience and I formerly regarded *pigraria*. it as a lost *Phrudocentra*. But after a careful study together with the ♀ type of the following I have little doubt that it will prove a very close relative, or probably an aberrant form (perhaps crudely figured) of the same, with more green at the base of the forewing. The antenna is only figured as serrate, but in *basiplaga* ♀ the pectinations are not quite as long as the diameter of the shaft. Hindwing beneath perhaps greener distally than in *basiplaga*. Larva extremely sluggish, brown, protectively resembling a withered leaf, the first 5 abdominal segments with enormously large dorsolateral processes which form, viewed from above, a continuous plate. On a parasitic plant called "Vogelgagga". Surinam.

T. basiplaga Walk. (5 d) differs from the similarly shaped species in the reddish basal patch of the *basiplaga*. forewing. ♀ larger and less long-winged than ♂ (compare *pigraria*). Described from Brazil, but extends to French Guiana and Costa Rica.

T. hamata Schaus (5 d). Rather large, shape very extreme, the forewing falcate, the hindwing produced *hamata*. anally as in *albiparsa* (5 e). Forewing somewhat suffused and striated with olive-brown, hindwing brighter grey; the postmedian line broad, bandlike, purple-brown, running from an apical shade on forewing to before middle of abdominal margin of hindwing. Costa Rica: Tuis, only the type known.

T. maiester Dyar must be close to *hamata* (5 d), if not a form of the same. Shape similarly extreme. *maiester*. Expanse 27 mm. "Forewing dark green, the apex red-brown, the extreme costa and tip black; some blackish freckles along costal half; discal dot rounded, purplish; outer line broad, purplish over white, joining the costa near apex. Hindwing green, the line slightly beyond the minute discal dot." Panama Canal Zone: Porto Bello, 1 ♂, April 1912.

T. apicibadia *sp. n.* (5 d) shows also the extreme shape. ♂ 28 mm, ♀ 37. Forewing with the black *apicibadia*. cell-dot ringed with brown; weak brown strigulae in anterior half, condensing into a conspicuous spot in the apex; postmedian rather broader than in *acuta*; a weak antemedian, angled outward at both folds. ♂ hindtibia not dilated. ♀ antenna minutely pectinate to about the 16th segment. Gorgona Island, Colombia, 200 feet, at light, 3 July and 20 November 1924 (C. L. COLLENETTE, St. George Expedition), 2 ♂♂, 1 ♀, in Brit. Mus.

T. olivia Schaus (5 e) differs from *acuta* in the less acute forewing and more rounded hindwing. Face *olivia*. green, mixed with white. Hindtibia of ♂ not dilated. Larva light fleshy brown, with very large leaf-like lateral processes on the first 5 abdominal segments and resting in a curled attitude which gives it a striking resemblance to a withered leaf; no doubt nearly related to that of *pigraria*. S. E. Brazil.

T. acuta Butl. (5 e) is the type of the genus and characteristically shaped, though not so extreme as *acuta*. some of its nearest allies. The face, in fresh specimens, is coloured as in *olivia*. Hindtibia of ♂ somewhat dilated, with a slender hair-pencil. Varies little, except in size, but the antemedian line of the forewing may be either present (though never strong) or obsolete. — **aganapla** Dyar, founded on a ♀ from Misantla, Mexico, seems *aganapla*. to be merely a large specimen, with the line on the hindwing a little broadened, appreciably dark-edged proximally. — For the rest, *acuta* is distributed from Panama to French Guiana and the Amazons, the last-named being the type locality. Also known from S. Brazil.

T. antimima *sp. n.* (5 e). ♂ 28—30 mm, ♀ 32—34 mm. The ♂ is scarcely distinguishable from large *antimima*. specimens of *acuta* (5 d) except that the palpus is scarcely or not at all blackened and the apex of the forewing is more falcate, almost as in *allineata*. The ♀, which we figure, is recognizable at once by having the antenna pectinate, with the longest branches 2—3 times as long as the diameter of the shaft. Carabaya, S. E. Peru, 2000—3400 feet (G. OCKENDEN), the type series from La Oroya, 3100 feet.

T. allineata Warr. (5 e). At first sight confusingly similar to *acuta*, though on an average smaller. *allineata*. Forewing appreciably more falcate. ♂ with the pectinations and the hindtibial dilation a little heavier. Wings slightly less opaque, less clear green, especially in median area, the lines slender, perhaps a little less white, the antemedian of the forewing sometimes better expressed, the postmedian slightly less straight, more diffused on its proximal side and becoming obsolete considerably before reaching apex. Venezuela and distributed to Colombia, French Guiana and the Amazon.

- oleaster*. **T. oleaster** *Schaus* is very much like *allineata* (5 e), but of a duller, more brownish green colour, somewhat clearer green costally, basally and terminally than in the median area. Structure as in *allineata*, of which it might possibly be a form. Costa Rica, Panama and I think Colombia.
- albisparsa*. **T. albisparsa** *Warr.* (5 e). Hindtibia of ♂ not dilated. Hindwing very strongly produced to anal angle. Lines approximated, wavy; median area irrorated with white. ♀ palpus with 3rd joint elongate. Peru (loc. typ.); Costa Rica, Colombia to French Guiana, Trinidad and the Amazons. A ♀ from British Honduras, with the postmedian line more crenulate, perhaps represents a race.
- subfulvata*. **T. subfulvata** *Warr.* (5 e). Variable in size. Easily known by its strong ochraceous and grey suffusions (beneath clearer ochreous), which leave only a little clear green distally and on the forewing costally. Cell-spot of hindwing elongate, often also broad. Palpus short and slender, antenna well pectinate, in both sexes nearly alike. French Guiana (type) and the Amazons.
- nepia*. **T. nepia** *sp. n.* (5 e). Near *subfulvata* in structure and coloration, but much smaller. Hindleg relatively with tibia a little shorter and thicker and tarsus longer (in both species long). Wing-shape slightly more typical; both wings with 1st median well stalked; no definite markings except the straight whitish postmedian line. Taperinha, near Santarem, June and July 1927 (Dr. H. ZERNY), 5 ♂♂. Type in Mus. Wien.
- undilineata*. **T. undilineata** *Warr.* (♂ = *occulta* *Warr.*) (5 f) has about the shape of *albisparsa* (5 e) but the lines brown, costal edge of forewing dark-spotted, some slight brownish strigulation on the wings. ♂ with hindtibia somewhat dilated, pectinations rather long; ♀ also pectinate, though somewhat more shortly. British to French Guiana and the Amazons, also in Matto Grosso, Ecuador, Colombia and Costa Rica. In Carabaya and N. Bolivia (La Paz) a probable race, with larger cell-dots (especially on the forewing) and heavier brown markings, awaiting more material for confirmation of the distinctions.
- costiscripta*. **T. costiscripta** *Warr.* (= *fuscicosta* *Warr.*) (5 f). Considerably smaller and less characteristically shaped than *undilineata*, with which it agrees in the colour of the lines; costal margin more strongly darkened, with slight projections at the origin of the lines. French Guiana and the Amazons.

13. Genus: **Phrudocentra** *Warr.*

A heterogenous and not very sharply defined genus, assumed to include all the nearest relatives of *Tachyphyle* which have not the proximal spurs of the hindtibia aborted and are generally markedly different in shape, rarely showing either the acutely produced apex of the forewing or the produced anal angle of the hindwing, scarcely ever (perhaps only in the ♂ of *taediata*) the two peculiarities in conjunction. Terminal joint of ♀ palpus long (in typical *Tachyphyle* rather short). The generic name is distinctly paradoxical; WARREN's type specimen (a ♂ of *pupillata*) has the proximal spurs of the hindtibia pressed closely against the leg so that he overlooked them!

- flaccida*. **Ph. flaccida** *Warr.* (6 a). Systematic position doubtful. The ♂ frenulum is so well developed that it might be given a new genus next to *Rhedochlera*. ♀ palpus with 3rd joint long. Hindtibia of ♂ with proximal spurs short, rather near the terminal ones; a hair-pencil and terminal process. Hindwing shaped nearly as in *Tachyphyle*. An unmistakable species. Described from Peru, but commoner on the Upper Amazon.
- tanystys*. **Ph. tanystys** *Prout* (5 g). Wings rather broader; the brown markings not mixed with red; antemedian of forewing bent inwards at fold; basal area in posterior half clear green, anterior half variegated with green, brown and whitish-violet. ♂ antenna with at least 30 joints pectinate, rather more than in *flaccida*. Santa Catharina.
- niveiceps*. **Ph. niveiceps** *Prout* (6 a) shows in its white head and in the shape and markings of the forewing, distinct relationship to *Tachyphyle undilineata* (5 f), but the pectinations are very short and the hindtibia has all the spurs well developed and a rather long terminal process. Lines less bright brown than in *undilineata*, the postmedian on the forewing much straighter. E. and S. E. Peru and Bolivia.
- taediata*. **Ph. taediata** *Feld.* (6 a) is another whiteheaded, *Tachyphyle*-like species, especially so in the ♂; the ♀ has broader wings. Pectinations shortish. Hindtibia nearly as in *niveiceps*, the process rather less long. Lines weak, chiefly defined by a characteristic bluewhitish shading. — ab. **nigroapicalis** *Dogn.*, founded on a ♂ from Popayan, Colombia, has rather distinct cell-dots and black dot in apex of fringe of forewing. — **lucens** *Warr.*, founded on a ♂ from Pozuzo, E. Peru, is also possibly a casual aberration, but is rather large and has the hindwing rather round-margined for a ♂ and the antemedian line of forewing more regularly curved, and may well represent a race. Otherwise *taediata* is distributed on the Amazon (the type locality) and from Colombia to French Guiana, including Trinidad; also apparently Santa Catharina, an obscurely marked ♀ in coll. OBERTHÜR.

Ph. subaurata Warr. (= *aereticincta* Warr.) (6 a). Nearly related to *taediata*, but generally with a suffusion *subaurata*. of golden-bronzy over a great part of the upper surface and of brighter ochreous on the under. In very fresh specimens, however, this tone is not, or scarcely observable, but in any case *subaurata* is distinguishable by the slightly longer hindtibial process ($\frac{1}{2}$ first tarsal joint), rather more falcate forewing, with cell-dot more conspicuous and postmedian line better defined and rather more distally placed, and more rounded hindwing. Underside of hindwing with a dark spot at abdominal margin (behind the discocellulars), characteristic of many of the following species, but beginning to show in *taediata*. Both WARREN's types were from Carabaya, S. E. Peru.

Ph. assa Druce (5 g). Smaller than *subaurata*; apex of forewing less produced, hindtibial process longer, *assa*. reaching considerably beyond middle of 1st tarsal joint. Face with upper $\frac{3}{5}$ golden. Underside suffused with rather dark olive-grey, with narrow whitish distal borders, the forewing posteriorly and the hindwing anteriorly also remaining whitish, the postmedian line indicated in whitish. Costa Rica: Rio Suzio, only the type ♂ known.

Ph. mitigata Prout (5 g) combines the shape of forewing and whitish fringes of *taediata* with the bent *mitigata*. hindwing of the following group. 2nd joint of palpus, in the ♀ the 3rd also, strongly elongate. Hindtibial process about as long as in *assa*. Lines even weaker than in most *taediata*; cell-dot of hind- larger than that of forewing and ringed with pale scales. Underside with blackish spot between cell-dot and hindmargin of hindwing strong. Described from Panama, subsequently received from Costa Rica.

Ph. leuconyssa sp. n. A very close relative, possibly even a race, of *mitigata* (5 d). Palpus strongly *leuconyssa*. reddened (in *mitigata* whitish). Forewing rather narrower, yet with the costal margin rather well arched. Postmedian line broad, clear white, not dark-shaded proximally, arising in the apex of the forewing, oblique and very faintly curved, reaching hindmargin at least as far out as in *mitigata*, on hindwing very slightly curved, ending at $\frac{3}{5}$ abdominal margin, i. e. nearer to the dark spot of underside than to anal angle (in *mitigata* equidistant). Guatemala: Panajachel, 5000 feet (CHAMPION). Type ♀ in Mus. Brit., recorded in the "Biologia" as (*Dichorda*) *iris*.

Ph. albiceps Warr. (6 a) differs from *mitigata* in the white face, rather less produced apex of forewing, *albiceps*. more angled distal margin of hindwing and deeper green colouring, also structurally in the obsolescence of the terminal process of the ♂ hindtibia. S. E. Peru. Subsequently collected in E. Colombia by A. H. FASSL.

Ph. agari Prout. ♂, 33 mm. Closely like the largest examples of *vivida* (6 a) and *pupillata* (6 b), palpus *agari*. rather longer ($1\frac{3}{4}$ times the diameter of the eye), antennal pectinations longer (4 times diameter of shaft), hindtibia very little dilated, without terminal process. Forewing with termen more oblique, slightly bent at 3rd radial. Hindwing with abdominal margin very long, termen strongly bent at 3rd radial; the black patch between discocellulars and abdominal margin wanting. Dominica.

Ph. vivida Warr. (6 a). This species and *pupillata* are a puzzling pair of twins, or possibly a still more *vivida*. extensive group of very close allies, not yet separable in the ♀ (though I have observed slight differences in the length of the 3rd palpal joint which will ultimately furnish clues), and in the ♂ only constantly distinguishable by the hindtibia. In *vivida* this bears only an absolutely rudimentary terminal process. Perhaps on an average — at least in some localities — *vivida* ♂ has the hindwing less extremely long and narrow, with the angle at 3rd radial less strong. The dark posterior spot of the hindwing beneath is occasionally — though rarely — obsolete in both species, but perhaps less rarely in *pupillata* than here. Very generally distributed from Mexico to Brazil, the type from Venezuela.

Ph. pupillata Warr. (6 b). For the differentiation of this species from *vivida* see above; in *pupillata* *pupillata*. the tibial process of the ♂ reaches about to the middle of the long 1st joint of the tarsus. — ab. **submaculata** *submaculata*. Warr., founded on a damaged ♂ from Colombia, has a broad blackish antemedian cloud on the hindwing beneath, reaching from the anterior branch of the cell-fold to the submedian fold. In N. W. Venezuela aberrations almost as extreme are somewhat prevalent. *acuta* is distributed, and often common, from Mexico to Brazil. The type was from British Guiana.

Ph. marcida Warr. (5 g). Apex of forewing not produced and without a black dot; hindwing rounded. *marcida*. The pale lines not sharp, but shaded with darker green in the central area. The black cell-dots reproduced on the underside, which has the hindwing and hindmargin of forewing more whitish, the former with the spot behind end of cell and a broad terminal band distinct, green. ♂ tibial process short. Fonte Boa (type) and British Guiana.

Ph. sordulenta Dogn. is much like *marcida* (5 g); perhaps a form of it, but has the posterior half or *sordulenta*. more of the forewing and nearly the whole of the hindwing (except a distal border) suffused with brown, the underside with a rather noticeable white postmedian band. Amazons (loc. typ.) and French Guiana.

Ph. senescens Prout (5 g). In size and shape near *marcida*, in structure (short palpus and pectinations *senescens*. and long tibial process) nearer *niveiceps* (6 a). Lines of forewing also placed nearly as in *niveiceps*, but the

postmedian marked with dark dots or dashes on the veins. The paler, more greyish green ground-colour is characteristic. Face green. Colombia: Sierra del Libane, 6000 feet.

- discata.* **Ph. discata** Warr. (6 b) differs from all the other known *Phrudocentra* in the large red-brown, black-centred cell-spot of the hindwing; beneath, this becomes more blackish and ill-defined, connected with traces of the posterior spot which is so common in the genus. Pectinations not quite so short as in *senescens*. Hindtibia without process. Peru (type), Amazons and French Guiana. The type has the lines strongly brown, not indistinct and olivaceous as in the other form (? subspecies).
- contaminata.* **Ph. contaminata** Prout (6 b) is best distinguished from *trimaculata* (6 b) by the much less (in the ♀ scarcely) bent margin of the hindwing; further by the more regularly curved antemedian line of the forewing, stronger black apical dot, etc. The position of the very ample purple-grey cloudings of the underside is indicated above by dingy suffusions. Antenna of ♀ scarcely serrate. Hindtibia of ♂ scarcely dilated. ♀ larger than ♂. S. E. Peru; also known from E. Colombia and E. Ecuador.
- intermedia.* **Ph. intermedia** Warr. (6 b), which is perhaps, as I formerly supposed, a Peruvian race of *trimaculata*, has the shape slightly less extreme than in that, the cloudings of the hindwing beneath divided into an antemedian and an incomplete postmedian band, with only slight suffusions between them. I believe it occurs also at Loja.
- trimaculata.* **Ph. trimaculata** Warr. (6 b) is recognizable by the 3 characteristic subterminal spots of the hindwing above. Outer dark band of underside a little more extended than in *contaminata*, on the hindwing, as in that, confluent with dark shading which reaches almost to the base. Panama (type) and Costa Rica.
- condensata.* **Ph. condensata** Warr. (6 b). On an average smaller, the hindwing perhaps still more sharply angled, but best distinguished by the underside: forewing with the outer band not very broad, in cellule 3 constricted or even interrupted, behind the 2nd median without the long proximal extension which characterizes the 3 preceding species; hindwing with the outer band mostly green, only forming a dark spot at costa and sometimes one or two small spots behind the middle. Hindtibia not dilated. S. E. Peru and distributed, though rather sparingly, as far as Panama and Matto Grosso.
- albicoronata.* **Ph. albicoronata** Prout (6 c). Close to *opaca*. Hindtibia of ♂ with a small hair-pencil which is wanting in that species. Vertex of head more broadly white. Forewing beneath with the outer band in the typical form narrower, posteriorly separated from a dark terminal line by some green maculation. Hindwing more angled, the postmedian band bent inward between the radials, but not or scarcely interrupted. Venezuela; also known from Colombia. — **sixola** *subsp. nov.* has the bands beneath broader, especially that of the forewing, which is quite as in *opaca*. Costa Rica: Sixola River (W. SCHAU), the typical pair in Mus. Tring, ♀ antenna pectinate about as in *opaca* (6 c); Guatemala: Vera Paz, a ♂ in Mus. Brit. Some examples from E. Colombia are similar or slightly intermediate towards the name-type.
- abscondita.* **Ph. abscondita** Warr. (6 e) is still nearer to *opaca*, possibly a race. Hindtibia (as in that species) without pencil. Hindwing slightly broader and more bent, more approaching the shape of *albicoronata*, which it further resembles in having the postmedian line more proximally placed and less markedly curved; beneath almost as green as the forewing (in *condensata* and *opaca* more whitish), antemedian band rather broad, postmedian scarcely darkened except in a small spot at costa (like an extreme *condensata*). S. E. Peru: La Oroya. Also Chanchamayo and ? Bolivia.
- opaca.* **Ph. opaca** Butl. (6 e) has already been differentiated from *albicoronata* and *abscondita*; from *condensata*, which is sometimes very similarly marked beneath, it differs so widely in shape that confusion should be impossible. Dark postmedian band of hindwing beneath partially, or much oftener entirely, interrupted between the 2nd subcostal and 3rd radial. Described from the Brazilian Amazon; also fairly common in French Guiana and straggling southward in Brazil.
- genuflexa.* **P. genuflexa** Warr. (6 e). Very similar to *opaca*. On an average rather smaller. Hindtibia of ♂ with a small hair-pencil. Postmedian line slightly more sinuous. Hindwing still more rounded, beneath with apical blotch enlarged but with the posterior spot of this band almost obsolete. French Guiana; also Surinam and the Amazon. Antenna of ♀ pectinate, about as in *opaca*.
- eccentrica.* **Ph. eccentrica** Prout. Bands beneath somewhat as in *intermedia* (6 b), but more clearly separated. ♂ rather small, in shape scarcely more extreme than *contaminata*. ♀ large, with the forewing even more excavated behind the apex than in *trimaculata*, the hindwing angled about as in *intermedia*; remarkable for having the antenna pectinate with longer branches than the ♂, an extremely rare occurrence in the Lepidoptera. Paraguay (type) and S. E. Brazil. — **giacomellii** Dogn. (6 c), from N. Argentina, seems to be a rather bright green form with sharper white line, the sexes less discrepant in size. Perhaps more extensive material will show it a synonym.
- neis.* **Ph. neis** Druce (5 h) has also the ♀ antenna more strongly pectinate than the ♂ and further resembles *eccentrica* on the underside. Characterized above by the brown lines and by the distal maculation of the

forewing; the latter is somewhat variable, often breaking into 3 strong spots between the veins. Hindwings in both sexes angled. Chiriqui (loc. typ.) and Colombia; DRUCE also records it from Coatepec, Mexico. — *affinis* *affinis*. *Warr.* lacks the proximal dark clouding of the forewing beneath. French Guiana (loc. typ.), E. Bolivia and Santa Catharina.

Ph. inquilina *Dogn.* is very likely another form of *neis*, but as that occurs in the typical forms as near *inquilina*. the Cauca Valley as Muzo (400—800 m), I leave it as distinct. Sometimes smaller; only 2 spots (between 3rd radial and 2nd median) present on the subterminal irroration of the forewing: underside with the bands much reduced, especially on the hindwing, where the postmedian is quite fragmentary except at the costa. Cauca Valley, Colombia, 1000 m, 2 ♂♂.

Ph. nigromarginata *Dogn.* Very distinct, but probably related to the following; it is just possible, *nigromar-* however, that it is an aberrant *Racheospila*. Hindlegs lost in the unique type. Pectinations only about as long *ginata*. as diameter of shaft. Hindwing bluntly elbowed. Both wings above with a complete black border occupying the distal third, that of the forewing expanded between 5th subcostal and 3rd radial; cell-spots black, larger on forewing, each with white pupil. Beneath with the band reduced on the hindwing, which is greenish-white rather than green and lacks the cell-spot; that of the forewing not white-pupilled. Rio Toche, Quindiu, Colombia, 2400 m. 1 ♂.

Ph. janeira *Schaus* (4 g) is a striking species, perhaps variable even in Brazil, from which country, *janeira*. however I have only seen the type and two specimens from Santa Catharina (one figured), which agree very accurately therewith. Pectinations of the ♂ moderate, the ♀ also probably pectinate. — **tenuis** *Warr.*, from *tenuis*. Central America (Guatemala, Costa Rica, Panama) and Trinidad, has the dark proximal patch of the forewing reduced, not reaching the base, the bandlike shading outside the postmedian of the hindwing more or less reduced. WARREN's type was from Trinidad.

Ph. vagilinea *Warr.* (6 c) is slightly rounder-winged, lacks the basal clouding of the forewing and has *vagilinea*. the border of this wing broader and more solid, quite differently shaped at its anterior end, the postmedian of the hindwing followed by much less (or no) band-like shading. Antenna of ♀ pectinate. French Guiana (type) and the Amazons. A ♂ from São Paulo, hitherto misidentified as *janeira* ab., is probably a race, with increased dark irroration on hindwing distally.

Ph. kinstonensis *Btlr.* (= *kingstonensis* *W. F. Kirby*) (5 h). This species introduces a little group of West *kinstonensis*. Indian forms, different in shape and (generally) in maculation from the true *Phrudocentra*, so that they would possibly justify the retention of the name *Nesipola* *Warr.*, which was proposed for them. Of *kinstonensis* only the type ♂ is known. It differs structurally from the following species in that the 3rd joint of the palpus is short and the hindtibia lacks the terminal process. Cell-dots black, surrounded with red, no other red markings on the wings: hindwing scarcely at all angled. Jamaica.

Ph. centrifugaria has the 3rd joint of palpus longish in the ♂, very long in the ♀; hindtibia of ♂ with terminal process. Exceedingly variable, perhaps individually rather than geographically, though some island forms have received separate names. — **stellataria** *Mösch.*, from Jamaica, differs little in the ♂ and in the *stellataria*. corresponding, simple form of the ♀ from the other races, but the ♀ aberrations have the spots generally placed more posteriorly and distally. — ♀-ab. **concentrata** *Warr.* (4 f) has on each wing an oval redbrown spot placed *concentrata*. close to the tornus. — ab. **meceospila** *nov.* has both the posterior spots much enlarged, pale with dark edges, *meceospila*. that of the forewing reaching the radial fold. — **centrifugaria** *H.-Sch.* (= *hollandaria* *Hulst*, *anomalaria* *Möschl.*) *centrifu-* (6 d) is the ♀-form, respectively named from Cuba, Florida and Porto Rico, with more or less large white. *garia*. reddish-ringed posterior spot, which may extend from submedian to 1st radial, or may be confined to cellule 2; this very small spot is found occasionally in the ♂. — ♀-ab. **viridipurpurea** *Hulst* has the spot dull dark purplish *viridipur-* instead of white. — ♂-f. **protractaria** *H.-Sch.* (= *jaspidiaria* *Hulst*) lacks the posterior spot. Probably this may *purpurea*. (as in the Sta. Lucia race) occur also as a rare ♀ aberration. In all these forms, which seem to represent one *protractaria*. race from Florida to St. Thomas, there is great individual variability, but it is unnecessary to multiply the names, though attention may be called to the fact that a corresponding spot on the hindwing may be either present or absent. — **heterospila** *Hmps.*, from the Bahamas, was described as a species, but it is exceedingly doubtful *heterospila*. whether it can be maintained even as a race; the type ♀ is rather small with the red-ringed spot present on the forewing only, extending from the 1st median to the fold, but an aberration has it much enlarged (submedian to radial fold) and a moderate one developed at hindmargin of hindwing. — **impunctata** *Warr.* (6 d), from Do- *impunc-* minica, is of a deeper, brighter green than the other forms, the fringe not mixed with red, the hindwing slightly *tata*. elbowed, possibly a separate species. The general range of variation in the outer spot is as in *centrifugaria*. — **punctata** *Warr.*, from Sta. Lucia, is similar in the ♂ to *impunctata*; the red apical dot of forewing (suffusing the *punctata*. fringe) is usually succeeded by some slighter terminal dots. The ♀♀ vary from a form showing scarcely more maculation than the ♂ (though with fringe red-marked at base), through — ab. **albimacula** *Warr.*, with a white, *albimacula*. red-ringed spot in cellule 2 and a smaller, wholly red-brown one in cellule 3, to — ab. **catenata** *nov.*, with a chain *catenata*.

of elongate spots, somewhat confluent, but divided at least by red lines on the veins (type in coll. Brit. Mus.). Tendencies towards this form in the ♀ are perhaps a characteristic of the Sta. Lucia race.

hydatodes. **Ph. hydatodes** Warr. (6 d) is an erratic species, perhaps related to *subfulvata*, but with the distal margin of both wings gibbous in the middle and with a highly characteristic subdiaphanous anterior patch on the forewing above and beneath. French Guiana; found also on the Upper Amazon and in Peru.

vitiosaria. **Ph. vitiosaria** Dogn. (6 d) should, by its wing-form, be associated with *Ph. hydatodes* rather than with the following genus, to which it was formerly referred. Shape of forewing more extreme, discocellulars formed somewhat as in *Chloractis*; further characterized by the broad orange-brown outer band, etc. ♂ with antenna pectinate to about $\frac{2}{3}$, hindtibia not dilated. S. Ecuador (type) and S. E. Peru.

14. Genus: **Neagathia** Warr.

Differs from *Phrudocentra* in the more hyaline wings. Forewing with distal margin sinuous, but not actually excised anteriorly. Hindwing characterized by having two teeth or very short tails, respectively at the 1st and the 3rd radial. Antenna of ♂ pectinate to little beyond middle, of ♀ simple. Erected for *corruptata* which — if *semilucida* be only a form of it — remains the sole species.

corruptata. **N. corruptata** Feld. (6 d). Unmistakable and showing no great variation except in size. ♀ larger than ♂. Common on the Amazons, whence come FELDER's type. Also common in the Guianas and parts of Venezuela, E. Colombia to E. Bolivia and reaching Costa Rica. — **semilucida** Schaus, founded on a ♂ from Rio, is more poorly coloured. On seeing the unique type in Washington I wrote "perhaps a race (possibly even an aberration — discoloured)". In any case very close.

15. Genus: **Poecilochlora** Warr.

This is another small genus, founded chiefly on shape and coloration. General characters as in the two preceding. From *Neagathia* it differs in the non-hyaline wings, from *Phrudocentra* in having the hindwing weakly elbowed at the 1st radial, dentate at the 3rd, somewhat concave between. Antenna of ♂ shortly pectinated, of ♀ simply ciliated. Forewing with termen weakly sinuate anteriorly, elbowed at 3rd radial.

heterograpta. **P. heterograpta** Warr. (6 d) is the larger species, with rather shorter palpus, the green ground-colour mixed with white between the lines on the posterior part of the forewing and anterior part of hindwing. Described from the same locality as *minor*, known also from Colombia.

minor. **P. minor** Warr. (6 d). See *heterograpta* for the differentiation. Only known from Santo Domingo (Carabaya, S. E. Peru) and adjacent localities.

16. Genus: **Hyalochlora** Prout.

Wings still more strongly hyaline than in *Neagathia*, more regularly rounded, even the hindwing only very slightly waved and with a scarcely noticeably bend at the 1st radial, caused by a straightening of the margin from this point to the apex. Antenna and palpus much as in the two preceding genera. Forewing with the discocellulars extremely deeply inbent, the 1st median vein well stalked. Erected only for *splendens* Druce; the new species now added is very closely related. As I find that the ♀ frenulum is really present, I suspect that *Hyalochlora* may prove a specialized offshoot of *Racheospila*.

splendens. **H. splendens** Druce (6 e). Coloration, even in fresh specimens, extremely delicate. Postmedian line of hindwing pretty regularly curved. Mexico (type), Costa Rica and Colombia.

antolodoxa. **H. antolodoxa** ^{s.p.n.} Prout (6 e). ♂ 34—37 mm, ♀ 39 mm. Postmedian line of forewing less, of hindwing more, irregular in its course than in *splendens*, distal area proximally much brighter pink, distally more yellow, mid-hindmarginal patch more triangular, more obliquely placed. Costa Rica: Orosi, 1200 m (A. H. FASSL), 3 ♂♂, 1 ♀. Type in coll. JOICEY.

17. Genus: **Chrotochlora** Warr.

Face broad, prominent. Palpus in ♂ short. Antenna in ♂ with very short, stout pectinations which bear short but strong ciliation. Tongue strong. Hindtibia with 4 closely approximated spurs, terminal process vestigial. Abdomen not crested. Forewing with 1st subcostal arising from cell, running into costal; 1st median sometimes stalked. Hindwing with 1st median variable, connate to rather long-stalked. Only one species known and this only in the ♂; its exact affinities uncertain. Possibly collateral with *Tachychlora*.

Ch. perpulchra Warr. (6 e). Totally unlike all other species, through its white hindwing and broad, *perpulchra*. regular dark borders. Underside similar, but with a dark streak along base of costa of forewing and a faint greenish postmedian line on hindwing. E. Peru: Huancabamba, Cerro de Pasco, very rare.

18. Genus: **Dichorda** Warr.

Probably related to *Phrudocentra*, but distinguishable superficially by the shape and by the different tone of the green colouring and the stronger white lines; structurally by the different palpus and generally more hairy breast, more tufted legs, etc. Palpus hairy, rather long, but with the terminal joint in the ♀ considerably less elongate relatively than in *Phrudocentra*. Antenna in the ♀ serrate or pectinate. Hindtibia of the ♂ not dilated. Belongs chiefly to North and Central America and the West Indies, but one species has reached Peru and the Amazons and one very aberrant species from N. Argentina is provisionally added.

D. rectoria Grote (6 c). Deeper and more bluish green than *iridaria*, the white lines more slender, the *rectoria*. veins not whitish-mixed, the costal edge of forewing also with less white. Fringes green, scarcely paler than the wings. Texas (loc. typ.), Colorado.

D. rhodocephala Prout (6 e) differs from *rectoria* in its redder head, *Racheospila*-like ornamentation *rhodo-* of the abdomen and obsolescence of the first line of the forewing. Jamaica. *cephala*.

D. iridaria Guen. (= *albolinearia* Martyn, *ined.*, *remotaria* Walk., *consequaria* H. Edw., *latipennis* *iridaria*. Hulst) (6 e). A pretty species with the postmedian unusually broad, somewhat shaded with yellowish on the proximal side, white longitudinal rays more or less strongly developed in distal area. Eastern United States and straggling into Central America. The larva has been found on sumach. — **perpendicularata** Warr., from *perpen-* Mexico, has the lines widely separated, on an average less broad, straighter, approaching *illustraria* except in *diculata*. size and colour.

D. illustraria Hulst (= *iridaria* part., *Pack.*, nec *Guen.*) (6 e). Larger than *iridaria*, the wings perhaps *illustraria*. not quite so fully rounded, purer green, the postmedian less broad, a little straighter, the white distal rays rarely well developed. Described from California, also inhabiting Arizona, etc.

D. obliquata Warr. (6 f). This species and the two following form a separate group, with pectinate ♀ *obliquata*. antenna; on the whole smaller and with the lines more oblique, but quite similar in facies. In the present species, as in the two preceding, the underside has a dark inner-marginal spot behind the discocellulars, like that of many *Phrudocentra*, but smaller. Mexico (loc. typ.) and Costa Rica; perhaps occurs also on Trinidad with *uniformis*.

D. uniformis Warr. (6 f) lacks the dark posterior spot of the underside, but may possibly prove a form *uniformis*. of *obliquata*. The less convergent lines, with less *iridaria*-like edgings, separate it from *iris*. Described from Trinidad, known also from Venezuela, the Guianas and even Guatemala.

D. iris Bull. (6 f) presents a distinctive appearance in the position of the lines and their yellowish edges. *iris*. The lower part of the face seems to be whiter than in *uniformis* and the pectinations of the ♀ may be a trifle shorter. Best known from the Amazons, the type from Rio Tapajos: occurs also in Colombia, at La Union, Carabaya, and I think meets *uniformis* in Surinam.

D. porphyropis Prout (6 f). Strikingly distinct, not only in the purple and reddish markings of the *porphy-* forewing but also in the development of a moderate hindtibial process in the ♂ and the stalking of the 1st *ropis*. median of the hindwing. The palpus, however, seems to bring it nearer to the present genus than to *Phrudocentra*. ♀ unknown. Argentina: Misiones, the type only. Brazil: Alto da Serra, a rather larger ♂, here figured.

19. Genus: **Leptolopha** Warr.

Here commences a group of genera with crested abdomen and almost invariably two-spurred hindtibia in both sexes. In *Leptolopha* the crests are relatively weak and undifferentiated, whitish, forming — at least in *pallidaria* — a longitudinal ridge. Occur chiefly in Peru and the Amazon subregion.

L. subaurea Warr. (6 f) is very striking on account of the golden-yellow colour of the greater part of *subaurea*. the wings. The type was damaged, so that the crests were not detected and the species has hitherto been misplaced. A second example, in beautiful condition, shows it to be in every detail a typical *Leptolopha*. Carabaya: Tinguri, 2 ♂♂.

L. permagna Warr. has the same size as *subaurea* but the green colouring brings it nearer to the rest *permagna*. of the species. From them it differs in its large size, relatively broad wings, absence of reddish marking at

apex or termen, and large cell-spots; that of the forewing oblique, dark-green, that of the hindwing yellowish, elongate, broadest and most distinct in its anterior half. Carabaya, 3100 feet: Tinguri, 2 ♀♀, La Oroya, 1 ♀. It would be an astonishing, but not absolutely incredible thing if this were shown to be the ♀ of *subaurea*. The other species do not show any pronounced sex-dimorphism.

- marginata*. **L. marginata** Schaus is intermediate between *permagna* and the two species which follow, the forewing having a rather large black cell-spot, the hindwing an elongate yellow-whitish one. Both wings with some very fine blackish irroration, distal border and fringe as in *flavilimes* (6 f), the former separated from the ground-colour by a very fine, but tolerably complete, orange-red line, which encroaches on the yellow at the apex of the forewing. Expanse 24 mm. Costa Rica: Tuis, 2400 feet, June 1907, 1 ♀.
- decorata*. **L. decorata** Warr. (6 f), described as an aberration of *flavilimes*, is evidently a separate species. Crests perhaps stronger, somewhat metallic: wings greyer green, with the proximal edge of the yellow border markedly crenulate. Amazons (type) and French Guiana.
- flavilimes*. **L. flavilimes** Warr. (6 f). Clearer green than the two preceding, the reddish apical spot present, the red line which separates the yellow border from the ground-colour usually fragmentary on the forewing, better developed on the hind. Peru (type) and the Amazons.
- nigripunctata*. **L. nigripunctata** Warr. (6 g) differs from *flavilimes* (6 f) in the broader and paler yellow costal streak, substitution of a transversely oblique dash for the apical spot, still straighter boundary of yellow distal borders and presence of a black cell-dot on the hindwing. Antenna of ♀ pectinate. S. E. Peru (type) and French Guiana.
- pallidaria*. **L. pallidaria** Schaus (6 g) differs from all the more tropical *Leptolopha* in its more uniform pale-green colouring (with some white admixture) and structurally in having the cells less short and the ♀ antenna more strongly pectinate. Cell-dots black, but very minute. Described from S. E. Brazil, but subsequently found also in N. Argentina and once in Bolivia.

20. Genus: **Auophylla** Warr.

This genus and the 6 which follow agree pretty closely in the strong, compact, more or less metallic abdominal crests and could without much difficulty be united into a single extensive genus, though the length of the palpus shows great variation. Antenna of the ♀ nearly always pectinate. The margin of the forewing is nearly always smooth, and even that of the hindwing seldom shows any noteworthy irregularity, except in a few tailed species in *Oospila*. *Auophylla* consists of a few species which are separable from *Oospila* by their shorter, slenderer palpus, less short cell of the hindwing (at least anteriorly), with less raised cell-spot and the 1st median (except in one new species) separate, not stalked. Crests on the whole less large. Almost confined to localities between 20° and 30° S. lat.

- magnifica*. **A. magnifica** Schaus (6 g). "Forewing white; costa yellowish; the extreme margin light brown; a small green space at base followed by a larger triangular green space, the base of which rests on the subcostal; an outer green space from above end of cell on subcostal to near the apex, contracting very much at vein 5, then expanding into a broad semilunar spot, not quite reaching vein 2; a subterminal brown line descends from vein 6, curves below the green spot, and suffuses with a broader shading which fills the median space to inner margin; a cluster of darker brown scales in cell; terminal line dark brown. Hindwing white, irrorated at base and in cell with brown; a large irregular green semilunar spot on inner margin, its point towards base acute, the other point obtuse before vein 5; a dark streak in cell, bifurcating towards costa; a subterminal brown line. Expands 37 mm. São Paulo. Allied to *includaria*." The ♀ figured has the green areas a little more extended, but the determination seems safe. ♂♂ are smaller, the white parts more heavily marked with brown. Is it more than a form of the following?
- includaria*. **A. includaria** H.-Sch. (= *inclusaria* Guen.) (6 g). Distinct from *basiplaga* in its larger size, large dark cell-marks and much broader pale borders, that of the hindwing connected with the patch which surrounds the cell-mark. Brazil (type) and Paraguay: I know only the ♀.
- basiplaga*. **A. basiplaga** Warr. (6 g). Pale markings more extended than in *multiplagiata*, particularly at hind angle of forewing. Paraguay (type), N. Argentina and Matto Grosso.
- multiplagiata*. **A. multiplagiata** Warr. (6 g). In addition to the reduced basal and terminal markings, this species is characterized by the large reniform cell-marks, which recall those of *includaria* but are well isolated from the borders. Paraguay (type) and N. Argentina.
- leucothalera*. **A. leucothalera** sp. n. (6 g) differs from all the other *Auophylla* in its shorter cells, forewing with discocellulars deeply incurved, 1st median connate or just stalked, hindwing with 1st median definitely stalked; superficially distinguishable from the first two species by some differences in the position of the green markings,

particularly in that that of the hindwing reaches the base. Brazil: Caraca (type ♀) and Queluz (1 ♀), both in coll. Brit. Mus., collected by P. GERMAIN; mountains of São Paulo, 2 ♀♀ in coll. Tring Mus.

21. Genus: **Auophyllodes** *Prout*.

This genus and the following appear to be more specialised developments of *Auophylla* with shortened cells and consequent additional stalkings of the veins: in the forewing all 5 subcostals are on a common stalk and in the hindwing the 1st median is stalked with the 3rd radial. *Auophyllodes* shows the further peculiarity that the 2nd subcostal of the forewing arises after (distally to) the 5th. Antennal pectinations in both sexes very long. The slender palpus has the 3rd joint relatively long in the ♀, but is much less long and strong than is characteristic of *Oospila*. The few known species are very closely related, sometimes scarcely separable, and are almost confined to the Neotropical Region north of the equator.

A. venezuelata *Walk.* (6 h). Certainly variable, but as the typical forms, with the cell-mark relatively narrow and the pale parts strongly mixed with brown, seem to be confined to the ♂ sex it is evident that some, at least, of those which have generally been separated represent its ♀. — ab. **ambusta** *Warr.*, with the borders rather extra narrow and dark-mixed, scarcely needs a separate name. — ab. **invasata** *Walk.* (= *perrupta* *Warr.*) (5 h) has the borders broader and paler, the cellmark variable, but generally broader than in the typical ♂ forms. Occurs in both sexes, but chiefly in the ♀. In renaming this aberration *perrupta*, W. WARREN was evidently under the impression that WALKER'S type (from Santa Marta) belonged to the following, which is not the case. — ab. **connexa** *nov.* has the border very broad on the hindwing and on the forewing posteriorly, here confluent with the enlarged cell-spot. Closely like *partita* except in its pale colouring. Chiefly, but not exclusively a ♀ form. *venezuelata* is not rare in Venezuela, Trinidad and Colombia and occurs in Panama and even Nicaragua and Mexico. — **cellata** *form. nov.* (5 h) is a race or closely allied species with a large cell-mark present on hindwing, confluent anteriorly with the border; otherwise closely like *invasata*. Mexico: Tabasco, type ♀; Guatemala: Duenas and San Geronimo, 3 large ♀♀, determined by DRUCE as *invasata* and *inclusaria*; all in Mus. Brit. We figure a ♀ from Duenas in which the cell-spot of the forewing is well separated.

A. partita *Prout* (5 h). Very similar to *venezuelata* ab. *connexa*, possibly another form of the same species, but with the costal margin considerably darker, the broad distal borders predominantly brown, the sexes alike, the ♂ hindwing perhaps a little broader than in typical *venezuelata*. Panama and extending to Colombia and to Mexico. A ♂ from Bolivia scarcely differs.

A. belisama *Druce* (5 h) is the darkest bordered species, characterized especially by the complete blackish border of the forewing beneath, continued also on anterior part of hindwing. Panama.

22. Genus: **Racheolopha** *Warr.*

Most characters as in *Auophyllodes*. Antennal pectinations less long, especially in the ♀, where, indeed, they are sometimes (*rufilimes* and *extensata*) wanting; forewing with the 2nd subcostal arising before the 5th. 1st median as a rule more decidedly stalked than in *Auophyllodes*. Distributed in South America as far as S. Brazil.

R. rufilimes *Warr.*, founded on a ♀ from N. W. Ecuador, is probably a small, narrow-bordered race of the following, or perhaps a mere aberration; a decision must wait on further material. Unfortunately the name has a year's priority.

R. extensata *Warr.* (7 a). Distinguishable from all the following by the colouring, the shape of the borders and in the ♀ by the simple antenna. Hindtibia of ♂ fringed, but I think not quite so strongly as in *arpata*. The type ♂, from Maroni River, has the borders slightly broader than in the series before me from that locality (including the one figured), but I have seen a ♀ from Fonte Boa which agrees with it. Range: Guianas to the Amazons.

R. mionophragma *sp. n.* (8 h). Extremely similar to *extensata*, but with slighter fringe on the ♂ hindtibia, the borders duller red, that of the forewing not continued in front of the 1st radial. Forewing beneath not (as in *extensata*) dark-clouded at base of costa. N. Peru: Huambo, 80 km S. E. of Chachapoyas (MATHAN), type ♂ in Mus. Brit. — **subbruta** *form. nov.* has the crests and borders darker, the latter narrower, especially on the hindwing, where the apical patch terminates at the 1st radial and is only continued by the dark terminal line, which expands into an extremely small spot (not shown on the underside) behind the fold. E. Peru: Chanchamayo, type in coll. L. B. PROUT, strongly recalling some forms of *arpata*, but with simple hindleg.

R. fimbripedata *Warr.* agrees in structure with *arpata* (4 f), at least in the ♂. Borders more reddish, coloured about as in *rufilimes* and *mionophragma*; from the latter it differs little except in the strongly fringed

hindleg, more reddish costal edge and broad red band on the back of the head. S. E. Peru: La Oroya, together with *arpata*: only known to me in two ♂♂.

- arpata*. **R. arpata** Schaus (= *similiplaga* Warr.) (4 f). Antenna of ♀ pectinate. Hindtibia of ♂ strongly fringed with long hair, much as in the *coerulea*-group of *Oospila*. Borders of forewing rather variable; apical spot of hindwing larger than in *subruta*, slightly edged with yellow proximally. Described from Rio Janeiro, but the forms from Bolivia, Peru and Colombia have not yet been separated racially.
- miccularia*. **R. miccularia** Guen. (= *imula* Dogn.) (7 a). Borders, especially that of the hindwing, more nearly uniform in width throughout than in the similar species which follow. Guianas, Amazons, Colombia and Peru. Both types were from French Guiana.
- albipunctulata*. **R. albipunctulata** sp. n. (5 i) is intermediate in the width of the borders between *miccularia* and *sarptaria*, but differs from both in that the hindwing has a minute white dot on the 2nd discocellular and no trace of any red dot; the borders have less of the pink admixture than the allies and therefore appear more brownish, white-mixed. Thus very different in colouring from the form of *sarptaria* which accompanies it in East Colombia. Muzo, 400—800 m (FASSEL), several, including the type, which is in coll. JOICEY; Upper Rio Negro (FASSEL) a few. Also 3 ♂♂, in poor condition, from Chiriqui, Panama, in Mus. Tring.
- sarptaria*. **R. sarptaria** Möschl. (7 a). Generally easy to distinguish from *miccularia* by the ample expansions of the borders, particularly on the forewing posteriorly; rather difficult intermediates, however, sometimes occur. *sarptaria* generally shows distinct, though very small red cell-dots, which in *miccularia* are still smaller or obsolete. Guianas and Amazons, the type from Surinam. — **ruboris** subsp. nov. (7 a) differs in its larger cell-dots, more reddened borders and generally in the shape of that at the hindmargin of the forewing, which does not reach, or only touches, the 1st median vein, whereas in typical *sarptaria* it commonly crosses it proximally and recedes more sharply between this prong and the terminal border. Colombia: Muzo (loc. typ.) and Upper Rio Negro (FASSEL). The forms from Panama, E. Ecuador and Peru may be united with this race; those from *ecuadorata*. Bolivia and Matto Grosso seem somewhat intermediate. — **ecuadorata** Dogn. (7 a), from Zamora, S. Ecuador, of which I know only one example, in bad condition, has the borders perhaps even more extended than in *sarptaria*, the proximal projection from the posterior part of that of the forewing reaching the 3rd radial.
- astigma*. **R. astigma** Warr. (7 a). Larger than *sarptaria*, slightly deeper green, the borders somewhat different in shape, a little paler, more broadly white-edged proximally; no cell-dots. Carabaya (type) and E. Colombia.
- leucostigma*. **R. leucostigma** Warr. (7 a). Borders rather paler still, the posterior one of the forewing shorter, predominantly whitish; hindwing with a conspicuous white cell-dot. S. E. Peru.
- delacruzai*. **R. delacruzai** Dogn. Larger than *astigma* (7 a), the anterior terminal spot of the forewing small, not reaching the apex nor connected with the large posterior one; the large apical and small anal ones of the hindwing similarly isolated. S. Ecuador. A form from Carabaya agrees completely with DOGNINS description except that it has a white cell-spot on the hindwing at least as large as that of *leucostigma* (7 a). Possibly this represents a separate race, but it may be a mere oversight that the white spot is not mentioned in the type.
- euchlora*. **R. euchlora** sp. n. (7 d). Group of *miccularia* but without marginal blotches, merely with double, slightly interrupted terminal line, the terminal one dark red, the proximal weaker, the two meeting at points midway between the veins, but separating to enclose yellow spots at the veins; minute red cell-dots, also on the hindwing indications of a white dash on 2nd discocellular. Matto Grosso: Burity, 30 miles N. E. of Cuyabá, 2250 feet, 1—14 July 1927 (C. L. COLLENETTE), 1 ♂ in coll. JOICEY.
- restricta*. **R. restricta** Warr. (7 a). Shape slightly different, borders rudimentary, cell-dot of forewing red-brown or grey, of hindwing white. S. E. Peru. The type (which is the only ♀ known to me) has lost its antennae, but I have no doubt they will prove pectinate, as in the preceding group. Also known from Colombia.

23. Genus: **Oospiloma** Prout.

A small genus, ancestral to *Oospila*, its sole raison d'être the retention of the proximal spurs of the hindtibia which (as already mentioned) have been lost in almost the whole of the present group. Palpus rather variable in length. Two Peruvian species, perhaps also one Costa Rican.

- lacteguttata*. **O. lacteguttata** Warr. (6 h). Somewhat like an overgrown *R. restricta* (7 a), but with no borders except the dark terminal line and the large white vein-dots. E. Peru (type) and E. Colombia.

O. fenestrata *Bastelb.* (7 a), described as a *Prognodes*, probably belongs here, but has lost its hindlegs. *fenestrata*. It seems only to differ from *lacteguttata* (6 h) in the absence of the cell-spot of the forewing. E. Peru: Oxabamba, 1 ♂.

O. thalassina *Warr.* (6 h). Rather more bluish green, with some dark maculation at distal margins, *thalassina*. the hindwing with two cell-dots, as in several *Oospila*, a raised white one on the 2nd discocellular, a black, red-edged one on the 3rd. Peru: Cuzco (type) and Carabaya.

O. (?) peralta *Schaus* (8 a), only known to me from a figure of the ♂ type (here copied), is said to be *peralta*. near *R. restricta* *Warr.* (7 a), but seems likely to be near *O. lacteguttata*, possibly even a small form of it. 26 mm. In addition to the cell-dots and white terminal spots (which extend on to the brown, white-tipped fringes), it shows traces of a dark postmedian shade and on the forewing of an antemedian. Peralta, Costa Rica.

24. Genus: **Oospila** *Warr.*

Palpus moderate to long, terminal joint in the ♀ strongly elongate. Antenna in the ♀ generally pectinate. Hindtibia with terminal spurs only, that of the ♂ sometimes fringed with long hair. Abdominal crests strong. Forewing with 1st subcostal from cell, 1st radial usually stalked, 1st median often stalked. Hindwing generally with a raised white spot on the 2nd discocellular; 1st median generally well stalked. A rather extensive South American genus, to which has been added one species from North America.

O. lesteraria *Grossb.* is unknown to me. It is said to be much like *Eueana niveociliaria* (8 k). Pale apple *lesteraria*. green, the markings white or cream-colour; antemedian of forewing widening posteriorly and here preceded by some maculation; base of hindwing white; postmedian of both wings followed by maculation between the radials and at hind angle. No cell-dots. Arizona.

O. confundaria *Möschl.*, founded on 2 ♀♀ from Porto Rico, belongs here, though its author calls the *confundaria*. red markings on the abdomen "spots", not "crests". "18 mm". Green, without lines, the forewing sometimes with a dark cell-dot; a reddish terminal line, interrupted with white at the veins, at hind angle sometimes widening a little into a small white-dotted spot; fringes spotted with red. A similar — perhaps identical — *Oospila* occurs on Sta. Lucia and Dominica, possibly a form of the following.

O. coerulea *Warr.* (6 h). Easily known by the long-fringed hindtibia of the ♂, the non-pectinate antenna *coerulea*. of the ♀ and the simple pattern. Described from French Guiana, but distributed to Venezuela and the Amazon. — **aphenges** *subsp. nov.* is slightly less bluish green, the terminal line very slight, sometimes almost obsolete, *aphenges*. especially posteriorly, its colour less purplish; fringe paler, less strongly mixed with pink. Matto Grosso, the type ♂ from Urucum, 15 miles S. of Corumbá, 650 feet, 16—23 November 1927 (C. L. COLLENETTE) in coll. JOICEY, which contains a second ♂ from Burity, 2250 feet, from the same collector. Also known from Tutaya, E. Brazil (Mus. Tring) and Recife, Pernambuco (H. ZERNY, Mus. Wien) and I think from Sapucay, Paraguay.

O. derasa *Warr.* (6 h). Distinguished by the large spot at tornus of forewing, usually also a small one *derasa*. at that of hindwing. Occasional transitions strongly suggest that it is a form of *coerulea*. French Guiana (loc. typ.) and the Amazons. Mr. COLLENETTE took in Matto Grosso (Tombador and Burity) a form with reduced tornal spot which, if the above suggestion is correct, might be called *coerulea aphenges* ab. *derasa*.

O. sesquiplaga *Prout* is similar to *derasa* (6 h) with rather larger posterior blotches and on the forewing *sesqui-* an additional terminal mark between the radials, pyramidal in form. "Brazil" (ex coll. SAUNDERS), founded on *plaga*. a ♀ in the Oxford Museum. I assume that the ♂ will prove to have the hindtibia fringed as in *coerulea*.

O. sellifera *Warr.* (6 h) belongs to the same structure group as *coerulea*, but is very distinct in the ample *sellifera*. purple borders. Both wings with a small black cell-dot on the 3rd discocellular; the raised white dot on the 2nd discocellular of the hindwing sometimes slight. Guianas and Amazons, described from French Guiana.

O. lilacina *Warr.* (7 c) is larger than *sellifera*, with the borders more extended, especially at the hind- *lilacina*. margins, and mixed with whitish; hindwing with 2 white cell-spots. ♂ hindtibia strongly fringed. I do not know the ♀. French Guiana.

O. longipalpis *Warr.* recalls *sellifera* (6 h) in its coloration but is larger, especially in the ♀, which expands *longipalpis*. 46 mm. Distinct in the subfalcate forewing and in the shape of the dark borders; that of the forewing is less broad and with only a shallow proximal sinus; that of the hindwing, on the other hand, broader (except at the apex) and without the deep excavation behind the radial fold. Beneath, the dark border of the forewing is reproduced, that of the hindwing becomes subterminal. ♂ hindtibia strongly fringed. ♀ palpus very long, her antenna not described. French Guiana, very rare.

- delicatescens.* **O. delicatescens** Dyar. "24 mm." Cell-dot of forewing black, of hindwing double, white. The narrow purple borders mixed with white, widening between the radials and the hindmargin. Panama Canal zone. A larger ♂, in poor condition, from Tutaya, E. Brazil, seems to be closely related and belongs to the *coerulea* group.
- confluaria.* **O. confluaria** Warr. (6 i) differs from *sellifera* (6 h) in the pectinate ♀ antenna and the narrower, generally lighter-mixed borders. WARREN describes the hindwing as "bent at vein 4", but this is scarcely noticeable in his drawing of his type from French Guiana, nor in the specimens before me from the Guianas and Para. Hindtibia of ♂ fringed. — **mesocraspeda** Prout is rather paler and more bluish green, the borders with rather strong violet-whitish admixture, that of the forewing broadening from the 5th subcostal to the apex. Panama, 1 ♀.
- carnelunata.* **O. carnelunata** Warr. (4 h) is probably near *confluaria*, as WARREN assumes, but the hindlegs are lost in the only specimen known to me, a ♂ from Fonte Boa. Borders rather ampler, delicate pink mixed with white, dark-edged, finely dark irrorated, anterior blotch of forewing distinctly darkened on the 5th subcostal and first 2 radial veins. Maroni River.
- decoloraria.* **O. decoloraria** Walk. recalls a dwarfed *coerulea* or *derasa* with the terminal line hardly indicated except by a very small brown spot at the tornus of each wing, but the antenna of the ♀ is pectinate. Jamaica.
- altonaria.* **O. altonaria** E. D. Jones (5 i). Very distinct in its large black, white-pupilled cell-spots. Hindtibia not so strongly fringed as in the *coerulea*-group. Alto da Serra, São Paulo.
- pellucida.* **O. pellucida** Prout (7 b). More translucent than *coerulea* and differing structurally in both sexes. ♂ hindtibia not fringed; ♀ antenna pectinate. Carabaya, S. E. Peru.
- ciliaria.* **O. ciliaria** Hb. (= *marginaria* Stoll, nom. praecoc., *semialbaria* Guen.), said to be from Brazil, is evidently the same species as *pallida*, but may, if the figure is accurate, represent a race. Very large, with the pale green wings whiter proximally and darkened on the veins. — **pallida** Warr. (7 b) is uniform whitish green, not so translucent as the neighbouring species, the cell-dots minute, the fringes bright rose-pink. Abdomen of ♂ with strong tuft from behind basal cavity. ♀ larger and rounder-winged than ♂. French Guiana (type), British Guiana and the Amazons.
- dicraspeda.* **O. dicraspeda** sp. n. resembles a dwarfed *confluaria* (6 i) with simple hindleg, or *tricamerata* (7 b) without the large cell-spots. Borders rather narrower than in them, but generally present also (and dark) on the underside. ♂ pectinations less long than in *tricamerata*, palpus rather longer. Matto Grosso (P. GERMAIN), 8 ♂♂ in coll. Brit. Mus., including the type. Tapcrinha. Lower Amazon (Dr. ZERNY), 1 ♂ in Mus. Wien.
- marginata.* **O. marginata** Warr. was founded on a ♀ from British Guiana in deplorably worn condition, but has since been received from both British and French Guiana. Cell-spot of forewing dark red-brown with a pale centre, terminal line red-brown, forking at or before the 2nd median, so as to cut off a larger or smaller, in part pale spot at hind angle; usually also a small terminal patch is present between the radial veins. Hindwing similar, but with the terminal markings generally smaller; a raised white mark on the 2nd discocellular. — **sympathes** subsp. nov. (7 c) is a large, broad-winged race with the terminal spots undeveloped excepting at the hind angle. E. Colombia: Upper Rio Negro, 800 m (A. H. FASSL), 5 ♂♂, the type in coll. PROUT.
- tricamerata.* **O. tricamerata** Prout (7 b) differs from the preceding in the additional terminal markings, which bring it nearer to *rufiplaga* *obsolescens*. Upper Amazons (loc. typ.), French Guiana and (?) Colombia.
- rufiplaga.* **O. rufiplaga** Warr. (7 b). A rather large species, with the pale parts of the markings more reddish than in *marginata*, the forewing typically with a better developed terminal spot between the radials, the one at the tornus also larger, extending to the middle of cellule 2. Described from S. E. Peru, known also from the Peruvian Amazons, Bolivia and Matto Grosso. — **obsolescens** Warr. apparently represents *rufiplaga* at Fonte Boa; the terminal spot between the radials is inclined to disappear (but is very variable), while there is often some development of the border on the anterior part of the hindwing. From *tricamerata* all forms of this species differ in lacking the central terminal spot of the hindwing and in the structure: pectinations of ♂ antenna less long; palpus of ♀ with 3rd joint only about half as long (in *tricamerata* almost equal to diameter of eye).
- trilunaria.* **O. trilunaria** Guen. (4 g). Unmistakable an account of its large spots and their coloration. Moreover it is the only species of the group yet known from the more southerly parts of Brazil.
- fractimacula.* **O. fractimacula** Prout (= *ruptimacula* Warr., nom. praecoc.) (7 e). Near *congener*, but with the cell-spots smaller and more rounded, the anterior terminal spot of the forewing narrower, the apical of the hindwing broken into two small ones, the anal much reduced. La Union, Carabaya, S. E. Peru.

O. congener Warr. (7 c). Easily recognizable from our figure. Not generally variable, except that the ♀ is much larger than the ♂. British Guiana (type), the Amazons and Colombia. — **procellosa** Warr., from S. E. Peru, is generally larger, at least in the ♂, and with larger dark markings, but perhaps not tenable racially.

O. atopochlora *sp. nov.* (7 c) might be taken for another form of *congener* but as it is constant at Muzo, E. Colombia, and *congener* equally constant on the Upper Rio Negro I think it must be a species. Larger, the anterior terminal blotch of the forewing with a small supplementary subterminal spot before and sometimes another behind, the apical blotch of the hindwing separated from, or only narrowly connected with, that at the radials, so that a green terminal patch remains between the apex and the 1st radial. Type in coll. PROUT (ex coll. FASSL). The JOICEY collection has also a ♂ from San Gaban, Peru.

O. violacea Warr. (7 c). Very distinct from all the other species, notably in the extended reddish suffusion of the hindwing. British Guiana (type) to French Guiana and to Matto Grosso.

O. florepicta Warr. (7 d). This and the next 2 species are intercalated here to introduce the group with an elongate spot on abdominal margin of hindwing, but have a rather simple structure and lack the raised white discocellular mark of the hindwing. *florepicta* may be recognized by its glossy, pale, translucent ground-colour and the prettily variegated spots. French Guiana (type) and the Amazons. — ab. **pulchripicta** Prout is smaller, the markings brighter red, with less dark admixture, their moss-green edgings and the moss-green basal patch of the forewing obsolescent.

O. flavicineta Warr. (7 d). Pale green, but less diaphanous than *florepicta*, the dark markings uniform dark purple-grey, finely edged with yellow, the subapical spots beneath only developed in their proximal part. Hindwing with termen slightly bent at the 1st and the 3rd radial, straight between. Described from N. W. Venezuela, but extends to Colombia and Ecuador. — **microspila** Warr., from Carabaya and Chanchamayo, has the hindwing more rounded, with its terminal spot smaller, not produced anteriorly, both the terminal spots beneath nearly reaching the margin.

O. rosipara Warr. (7 d). Very similar to *flavicincta* but with the hindwing rather better rounded, the terminal spots more flesh-coloured, only dark at their borders, beneath narrower and more lunular than in *flavicincta*. — ab. **conversa** Dogn. has the terminal spots longer, at least that of the forewing, which reaches nearly to the 1st median, the spot at abdominal margin perhaps more pale-mixed. I am not sure that it is more than the normal ♀-form of *rosipara*. The species is known from N. W. Venezuela (loc. typ.), Colombia, French Guiana and the Amazon.

O. concinna Warr. (7 d). This species and the close allies which follow it comprise some of the largest of the South American *Hemitheinae* and are characterized by the very ample pale blotches, notably the posterior one on the forewing. In typical *concinna* the blotches are paler (less shaded with pinkish-buff or -cinnamon) than in most of the forms, rather strongly bordered with dull purple and on the distal margin narrowly connected by pale and purple scaling. Not uncommon in Venezuela. Forms from Colombia and Peru have not yet been separated. Races (?) from Fonte Boa and E. Bolivia await more material. — **eminens** Schaus, from Costa Rica, has the pale patches much more suffused with pinkish cinnamon, the strigulae thereon and the terminal spots and dashes cinnamon or brownish rather than grey or blackish; the terminal shading which connects the blotches is slender, purplish. Known also from Guatemala.

O. albicoma Feld. (= *minorata* Warr.) (7 d). Smaller than *concinna*, the blotches pinkish-buff, with their purple edgings narrower, their connection along the distal margin even slenderer than in *eminens*; posterior blotch of forewing generally with a well-marked projection in cellule 3; hindwing rather less protuberant at the radials, the blotch at abdominal margin shorter and broader. Both the types were from the Amazons, but the range extends to Costa Rica, Peru and the Guianas. — **matura** *subsp. (? sp.) nov.* (7 e) is larger and with the pale parts slightly different in tone (more brownish) but evidently represents *albicoma* in S. E. Brazil, unless it be a separate species somewhat intermediate towards *concinna*. Not many specimens are yet known to me; the types are from Itatiaya (SEITZ and ZIKAN), a short series from Alto da Serra (SPITZ) is in the Tring Museum.

O. deliciosa Th.-Mieg is, I suspect, merely a small, pale-spotted form of *albicoma*. It is described solely by comparison with a large ("44 mm") ♂ which its author determined as "*albicoma*" and we have no means of knowing whether that was *eminens* or *matura*. "26 mm" (from tip to tip), the striae on the pale spots scarcely at all mixed with dots (in the larger ally — ? *matura* — much mixed with dots). Maroni River, 3 ♂♂.

O. semiviridis Warr. (7 f) differs from *albicoma* in the much narrower posterior spot of the forewing and very narrow abdominal-marginal spot of hindwing; cell-spot of forewing obsolete. Carabaya (loc. typ.) and E. Bolivia.

O. longiplaga Warr. Very similar to *semiviridis* (7 f), but with a single, elongate abdominal patch on hindwing, reaching from anal angle more than half-way to base. Fonte Boa, Upper Amazon. An extreme form (probably race) from S. Brazil is only known to me in a single ♀, in rather poor condition.

- nasuta*. **O. nasuta** Warr. (7 f), from Trinidad, has the blotch at hind angle of forewing smaller than in any of the preceding but with a characteristic "nose" projecting inward at the branches of the median.
- depressa*. **O. depressa** Warr. (7 f) differs from *semiviridis* (7 f) in the more pinkish and differently shaped spots, the posterior one of the forewing shorter (commencing behind the end of the cell), etc. Costa Rica.
- circumsignata*. **O. circumsignata** Prout (7 f). Somewhat less densely and less roughly scaled than the *albicomma*-group, the terminal patches more reddish, more broadly connected along the margin. Fonte Boa.
- rubescens*. **O. rubescens** Warr. (7 f). Very similar to *circumsignata*. Rather smaller; the green ground-colour of the forewing does not, as in *circumsignata*, project along the costa nearly to the apex; central projections of the ground-colour also differently shaped. French Guiana and Surinam.
- ruptimacula*. **O. ruptimacula** Warr. (7 e). Borders more variegated than in any of the *albicomma*-group, the anterior blotch of the hindwing constricted by a projection of the green ground-colour in cellule 6. Described from *aliphera*. Paramba, W. Ecuador; known also from S. E. Peru and the Upper Amazon. — **aliphera** Dogn., founded on a ♂ from Rio Songo, Bolivia, must, according to the description, be extremely close to *ruptimacula*, perhaps of a more yellowish green; if the omission of any mention of the two white cell-spots of the hindwing is accidental it may even be a synonym. — **curtimacula** *subsp. nov.* (7 b) has the terminal markings rather shorter and (except the apical of the forewing) darker-mixed, hindwing with only one white cell-dot, that on the 3rd discocellular remaining green. Gorgona Island, Colombia, 200 feet, October and November 1924, at light (C. L. COLLENETTE, "St. George" expedition), 3 ♂♂ 1 ♀ in Mus. Brit. The ♂♂ measure about 37 mm, the ♀ 50 mm.
- lunicincta*. **O. lunicincta** Warr. (6 i), formerly placed in *Racheolopha*, cannot remain there, as the 1st subcostal of the forewing arises from the cell. Its actual affinities, however, remain uncertain. In the unique type (a ♂) the palpus is short and if this proves to be the case in the ♀ also it should probably be transferred to *Auophylla*, in the vicinity of *basiplaga* (6 g). 1st median of forewing from angle of cell, of hindwing shortly stalked. Terminal markings paler and less extended than in *ruptimacula*. Sapucay, Paraguay.
- callicula*. **O. callicula** Druce has hitherto been placed in *Oospila*, with which the maculation associates it; but if the ♀ form described below is correctly placed with it, it must probably be transferred to *Progonodes*. Terminal markings smaller than in *depressa*, but on the hindwing narrowly connected; cell-spot of forewing and basal markings characteristic; hindwing with 2 white cell-spots, as in *ruptimacula*, but both rather large.
- stenobathra*. Founded on a ♂ from Chiriqui, in the STAUDINGER collection. — **stenobathra** *subsp. nov.* (7 g) lacks the basal patch of the forewing and has that of the hindwing extremely small, but has a vinaceous streak on the wing-tegula. Bolivia: Mutum, 20 miles W. of Porto Suarez, 1500 feet, 7—14 November 1927 (type ♂). Matto Grosso: Urucum, 15 miles S. of Corumba, 650 feet, 26 April 1927, a smaller but quite similar ♂. Both are in the JOICEY collection; obtained by Mr. C. L. COLLENETTE. — **orchardae** *subsp. (? sp.) nov.* ♀ expanse 44 mm. Palpus slender, only about as long as diameter of eye. Paler green, the spots also somewhat paler; proximal patch of forewing commencing at almost 2 mm distant from base, its distal edge more sinuate; that of the hindwing slightly angled outward to base of 2nd median; apical and ternal spots of hindwing only very slenderly connected at distal margin. Maranhao, N. E. Brazil (Miss ORCHARD), type in Mus. Tring. This can hardly be the ♀ to *stenobathra*.
- obeliscata*. **O. obeliscata** Warr. (7 e). A striking species, also of doubtful location, perhaps an *Auophylla*, as originally described, the ♀ palpus being somewhat intermediate. ♂ hindtibia strongly fringed, as in the first group of *Oospila*. French Guiana (loc. typ.), Amazons and Carabaya.
- camilla*. **O. camilla** Schaus (7 f). This species and those which follow have less regularly shaped wings than typical *Oospila*, the hindwing more or less prominent at the 1st and 3rd radials, sometimes markedly excised between. These have been considered a separate genus (*Drucia* Warr.), but they differ greatly inter se and are connected with the round-winged species through *plurimaculata* and *delphinata*. *O. camilla* is distinguishable from the other similarly shaped species by the extremely broad reddish borders. Costa Rica: Sixola, only the type ♀ known.
- quinquemaculata*. **O. quinquemaculata** Warr. is unknown to me, but must be very near *circumdata striolata*, but the terminal markings are flesh-coloured distally, densely striated with fuscous proximally, those at the anal angle "rounded", the apical one on the hindwing smaller, not crossing the 3rd radial. Maroni River, 1 ♀.
- circumdata*. **O. circumdata** Warr. (7 g) has the marginal markings in the typical form uniform clear reddish, inclining to carrot-red. S. E. Peru. — **striolata** Prout has the markings duller, much more variegated, the green of the ground-colour being here striated and clouded with purple-grey. Codajas, Upper Amazon.
- continuata*. **O. continuata** Warr. (7 g). Considerably smaller than *circumdata*, the markings darker, connected by a narrow terminal band. French Guiana (loc. typ.) and Fonte Boa.

O. jaspidata Warr. Near *excrecens* (7 g) in wing-shape, coloration, red base of forewing and development of some reddish scaling behind the cells, but with the borders scarcely broader than in *continuata*, only the apical of the forewing extended (intermediate between those of *circumdata* and *excrecens*). Rio Demerara, a ♀ in poor condition, scarcely an aberration of the following?

O. excrecens Warr. (7 g). Readily recognizable by the ample dark purple-red markings, particularly the posterior one on the forewing proximally. French Guiana (loc. typ.) and the Amazons.

O. hyalina Warr. Similar to *fractimacula* (4g) and *atopochlora* (7 c) except in the more sinuate margin of the forewing and pronounced excision of the hindwing between the radials. From Bogota I know only the type ♀, which has the marginal markings of the forewing even smaller than in the ♀ of *atroviridis*, the abdominal margin of the hindwing perhaps relatively longer. — **atroviridis** Warr. (7 g, h). Borders in the ♂ very heavy, on the forewing confluent; in the ♀ moderate, well separated except by the terminal line. Carabaya, S. E. Peru.

O. dolens Druce (7 h). Smaller than *atroviridis* ♂ and with the blackish markings still more extensive, on the forewing leaving only small basal, apical and midterminal patches green. Rio Dagua, W. Colombia, only the type known.

O. semispurcata Warr. (7 h) is a curious-looking species, of somewhat uncertain position, the markings ample, but consisting only of vague subconfluent spots. St. Jean de Maroni.

O. plurimaculata Warr. differs from *delphinata* (7h) in the rather broader wings, the hindwing with much less developed tail, on the other hand with an appreciable, though very slight, angle at the 1st radial; subapical spot of forewing rather larger (4 mm long), anteriorly crossing (in *delphinata* bounded by) the 5th subcostal; abdominal crests rather larger. Pozuzo, Huanuco, E. Peru, and I have recently seen 2 ♂♂ from Taperinha, near Santarem (Dr. H. ZERNY). — **symmieta** *subsp. nov.* (7 h) has the shape and hindwing maculation of typical *plurimaculata* but with reduced subapical patch of forewing like that of *delphinata*; differs from both in that the abdomen above and the abdominal patch of the hindwing are purple-blackish, the latter somewhat shortened. Minas Geraes, 4 February (coll. SEITZ), 1 ♂.

O. delphinata Warr. (7 h). Hindwing scarcely bent at 1st radial but with a small, sharp tail at the 3rd. S. E. Brazil. — **heteromorpha** Warr., from Paraguay, is typically a little larger and has the tail slightly blunter, the apical patch of the hindwing a trifle shorter, leaving a broader green space between this and the tornal spot; will perhaps ultimately be considered synonymous.

O. circumscissa Prout (5 k). A small species, with pronounced tail to the hindwing. Apart from its size and shape, it differs from *latimargo* (7 i) in the differently formed and less reddish borders. Founded on a ♂ from Rio Ucayali, Peruvian Amazons.

O. fumidimargo Dogn. is, according to its author, "between *excrecens* (7 g) and *latimargo*" (7 i), and he has forgotten to mention the shape of the hindwing. I suspect, however, that it is really close to *latimargo*, but with the borders more variegated, the anterior patch of the forewing larger (reaching the 1st median), the posterior one undulate proximally. Colombia near Cali, 2200 m, 1 ♂.

O. latimargo Warr. (7 i). In shape and colouring near *asmura*, on an average smaller; readily distinguishable by the more extended borders. Peru (type) and Colombia.

O. asmura Druce (7 i) shows little variation except in size, and cannot be confused with any other known species. Costa Rica to Bolivia, originally described from Panama.

O. rhodophragma Prout (4 b) is very dissimilar to all the other species and as the unique type has lost its hindlegs and the ♀ is unknown, the systematic position is somewhat uncertain. Palpus rather short. Pectinations not very long. Codajas, Upper Amazon.

O. lactecincta Warr. (7 i). This species and the following are transitional towards *Progonodes*, but are better placed here, as the palpus of the ♀ is moderate, with rather elongate 3rd joint. *lactecincta* is easily distinguished by the shape of the green parts and the absence of green spots on the costal and subterminal white bands. Fonte Boa, Upper Amazon.

O. sporadata Warr. (7 i). Wings of ♂ narrow, of ♀ ample, the white parts (except costal area of hindwing) more or less spotted with green. Guianas, Amazons and E. Peru, the type from St. Jean de Maroni.

25. Genus: **Progonodes** Warr.

A derivative of *Oospila*, in both sexes with extremely short palpus, hindwing typically with a faint angle at the 3rd radial and with the stalking of the 1st median vein rather short, sometimes failing. Only a few species known.

stagonata. **P. stagonata** *Feld.* (5 k) differs from the neighbouring species in the reduction of the white markings, which consist almost exclusively of dots and extremely small spots, and in the brown terminal line and brown fringe-spots opposite the veins. Bogota. — **holochroa** *Prout* is probably an aberration or local form, lacking the white maculation (excepting at termen) and having the brown spots in the fringe much weakened. Chiriqui, *arycanda*. 1 ♂. — **arycanda** *Druce* (5 k) seems to be another form of *stagonata*, but with the white spots enlarged, the terminal line obsolete. Costa Rica: Rio Sueio (type ♀) and Orosi.

athena. **P. athena** *Druce* (7 i). A fine species, characterized by the large white apical or subapical patches. Costa Rica to S. E. Peru, the type from Chiriqui, Panama.

diversata. **P. diversata** *Dyar* is unknown to me. "Forewing with the costa white, powdered with green; a broad white subbasal band; a slender mark on the bent discal vein; an outer white band, excurved over the discal venules, its inner edge dentate, its outer edge diffused above and duplicated by small dentations, narrow at veins 3 and 4, broadly diffused to tornus and containing an upright blackish macular shade; a wavy white terminal line. Hindwing similarly marked, the outer line less dentate inwardly and running up along inner margin to base, the black marking at tornus small. Expanse 30 mm." A ♂ from Tehuacan, Mexico (ROB. MÜLLER).

nivetacta. **P. nivetacta** *Warr.* (8 a). A rather small species; again with a quite different distribution of the white areas. Further distinct in the reddish costal margin and dark cell-spots. Guianas and Amazons, the type from Maroni River.

26. Genus: **Rhombochlora** *Warr.*

Probably only a section of *Oospila* or (if — as I suspect — the ♀ palpus prove short) of *Progonodes*, distinguished by the shape, especially of the hindwing, which has the distal margin produced to an acute angle at the 3rd radial. Crests partly green, thus less conspicuous than in most of the group. Palpus of ♂ about as long as diameter of eye. One species, of which only a single specimen is known.

granulata. **R. granulata** *Warr.* (6 k). In colouring nearest *O. semispurcata* *Warr.* (7 h), but totally different in shape and with the brown markings heavier, centrally and at distal margin more band-like. Fonte Boa.

27. Genus: **Lophochorista** *Warr.*

This genus, which completes the derivatives of *Oospila*, differs chiefly in having the thorax more strongly tufted and has also a distinctive colour-scheme. Sealing rather thin. Hindwing with a stronger tooth at the 1st than at the 3rd radial. Hindtibia in ♂ strongly tufted distally; hindfemur also, in the ♂ of *ockendeni*, strongly fringed. Only 3 species are known.

calliope. **L. calliope** *Druce* (5 k). Recognizable by its small size, relatively short ♀ palpus, presence of a dark stripe on the ♂ abdomen beneath, absence of the dark mark near anal angle of the hindwing beneath, reduction of the same above, etc. Mexico (loc. typ.) and Guatemala.

ockendeni. **L. ockendeni** *Druce* (8 a). Palpus of ♀ with long terminal joint, as in *Oospila*. Geographically variable. The nomenclotypical race, from Carabaya, is a large form and has the subterminal brown (on the underside blackish) band broad and heavy. The form from Chanchamayo, with the band somewhat less extreme, need not be separated. — **klagesi** *subsp. nov.* As large, or almost as large, as *ockendeni* (♂ 40—45 mm, ♀ 46—48 mm), the subterminal band narrower, less dark, distally indented, often more or less interrupted by the veins, sometimes in part obsolescent. Venezuela, the finest series collected by S. M. KLAGES at San Esteban; type in Mus. *orthorisma*. **orthorisma** *subsp. (? sp.) nov.* (8 a). Smaller (♂ 33—41 mm, ♀ 40—42 mm), head and patagia brighter ochreous, the green of the wings slightly more bluish, the median band less mixed with white, on forewing distally much straighter, the subterminal band nearly as in *klagesi*, but with stronger brown teeth distally before and behind the 1st radial. Matto Grosso: Burity, 30 miles N. E. of Cuyabá, 2250 feet, 6—30 September 1927, 9 ♂♂, including the type; Urucum, 15 miles S. of Corumbá, 650 feet, 16—23 November 1927; all collected for Mr. JOICEY by C. L. COLLENETTE. East Bolivia (J. STEINBACH), 4 ♂♂, 2 ♀♀ in Mus. Tring.

curtifascia. **L. curtifascia** *sp. n.* (8 a). Palpus in both sexes appreciably shorter than in *ockendeni*, pectinations of ♀ antenna also a little shorter. White subbasal area extended, median area somewhat narrowed, its distal edge strongly sinuous; subterminal band above more grey, less irrorated and suffused with brown, beneath almost as heavy as in *ockendeni*, but not bulged proximally between the radials, anteriorly cut off abruptly at the 1st radial, or with only a little dark sealing in front thereof. S. E. Brazil: Castro, Parana (the type ♀) and Corcovado, Rio (1 ♀) both in the DUKINFIELD JONES collection, now in Mus. Brit.; Alto da Serra (R. SPITZ), a ♀ in Mus. Tring. The only ♂ known to me is smaller (39 mm) and merely labelled "Brazil", hence not made the type.

28. Genus: **Chlorissa** Steph.

This Old-World genus (see Vol. 4, p. 24; Vol. 16, p. 27) is chiefly represented in the New World by *Chlorochlamys* and *Chloropteryx*, but a few North American species seem really to belong to it. They have, however, a shorter terminal joint to the ♀ palpus than in typical *Chlorissa*. Antenna of ♂ ciliated. Hindtibia of ♂ with 2 spurs, in ♀ typically with 4, though the proximal pair is sometimes ill-developed. Hindwing with the termen as a rule bluntly bent in the middle; costal vein anastomosing at a point (or scarcely more) near the base.

Ch. (?) euchloraria Guen. (= *euchloria* Hulst). Of this species the type, described from coll. BOIS-DUVAL, is lost, like most of his North American, and I have never been able to obtain any reliable information about it. The shape makes me doubtful of the generic position. "24 mm. Forewing acute at the apex, with termen elbowed, hindwing with a pronounced angle at the 3rd radial, the borders straight; both of a fine light applegreen above and beneath, the fringe white, slightly rosy. Forewing with a white line, hardly visible, straight, oblique, running from the middle of the inner margin to $\frac{2}{3}$ costa. Frons prominent, but entirely denuded in my example. North America, one example." *euchloraria*.

Ch. pistasciaria Guen. (= *insecutata* Walk., *superata* Walk., *pistaciata* Pack.) (8 b). Of this species *pistasciaria* also the type is lost, but the accepted determination seems to be correct. The ground-colour should be pistachio-green, with costal edge and fringes reddish, but it is liable to discolour, like the rest of the group. The lines are weak, slightly darker than the ground-colour, edged with whitish, the antemedian sometimes obsolete. Said to be fairly common in the Eastern United States.

Ch. subcroceata Walk. (= *auranticolorata* Streck.) (8 b) according to WALKER's type from E. Florida, *subcroceata* has the wings slightly more rounded, the face slightly redder, the wings more discoloured with ochraceous-buff (beneath deep chrome) the line perhaps less crenulate, but I know no good material in either species, and am ready to accept, as FORBES has suggested, that both may prove to be one. The larva believed to belong to this species has been described by DYAR. Head, after the first stage, with pointed lobes, similar conical points on the prothoracic shield anteriorly; body slender, smooth, greenish-brown, thickly granulated with white, the lines obscure, a series of dorsal, intersegmental deep brown dashes on the 1st to 5th abdominal segments; anal plate with a pointed projection. Reared from the egg on *Quercus coccinea*; they sit erect, without spinning a supporting thread. The pupa hibernates. Distributed in the Eastern States.

Ch. dyarii Hulst has usually been sunk to *subcroceata*, but in the recent "List of the Insects of New York" it is treated as distinct, being found at Bellport in May—June, while *subcroceata* appears in late June and July. 16 mm. Thorax green, yellowish behind; abdomen washed with violet-red above; wings deep yellowish green, costa, termen and fringe reddish violet; indications of lines, faint, broken and irregular; wings beneath much lighter yellowish green, base of forewing washed with reddish. Type from Long Island (?). *dyarii*.

Ch. (?) decipiens Warr. (8 b) resembles some of the species of *Chloropteryx* (especially *punctilinea*) and *decipiens* is evidently related to them, but has ciliate, not pectinate, ♂ antenna; and as this is at present the principal distinction of *Chlorissa* from *Chloropteryx*; we quote it here. The hindlegs, however, are missing in all the 3 known examples. Forewing with 1st subcostal arising from the stalk of 2nd—5th, anastomosing with costal. Underside with narrow terminal dark blotches at tornus of forewing and apex of hindwing. Carabaya, S. E. Peru.

29. Genus: **Mesothea** Warr.

An offshoot of the North American *Chlorissa*, with small eye, rather short palpus and in both sexes simple, 2-spurred hindtibia; pectus and femora hairy. The two species, both North American, are very closely related.

M. incertata Walk. (= *oporaria* Zell., *gratata* Pack.) (8 b). Delicate green when fresh, but very easily *incertata* fades to an ochreous almost as bright as in *Chlorissa subcroceata*. Common in the Eastern States.

M. viridipennata Hulst (8 b) represents *incertata* in the West, from Alberta and British Columbia to *viridipennata* Colorado, whence came HULST's type. Larger than *incertata*, the vestiture perhaps more hairy. Larva with head bilobed, the lobes produced into pointed horns; prothorax with smaller, slenderer cones; body green, slender, pretty uniform, granulated; a red-brown dorsal line; anal plate produced into a cone behind, brownish on the sides. Has been bred from the egg on *Salix* (DOD), wild cherry, gooseberry and cottonwood (DYAR). The pupa hibernates in a slight cocoon. Imago in May and June.

30. Genus: **Chlorochlamys** Hulst.

Essential characters as in *Chlorissa*, but with the antenna of the ♂ strongly pectinate. Hindwing with distal margin rounded or only very bluntly angled, but connected by intermediates with the following genus,

which should probably be merged in it. Chiefly North American, though one Central American species is added because scarcely more than a race of one of the former.

- phyllinaria*. **Ch. phyllinaria** Zell. (= *vertaria* Pears.) is a small species of a pale green colour, finely irrorated with white, the lines distinct, much more sinuous than in *chloroleucaria*. Face brownish red. ZELLER's type was from Texas, PEARSALL's from Arizona and the species is also known from New Mexico.
- zelleraria*. **Ch. zelleraria** Pack. (= *phyllinaria* Hulst, nec Zell.) (8 b). Very similar to the preceding but with green face and less irrorated green ground-colour. Range similar, the type from Texas.
- currifera*. **Ch. currifera** Prout (8 b). Face abraded in the unique type, but with enough scales left to indicate that it has been green; otherwise I should suppose it to be identical with a form (referred by PEARSALL to *phyllinaria* = *vertaria*) in which the postmedian of the forewing "makes a single broad outward sweep." Collected by R. E. KUNZE at Phoenix, Arizona, in September 1907, together with *phyllinaria*. I think the same species occurs in Mexico.
- appellaria*. **Ch. appellaria** Pears. "Expanse 13 mm. Palpi short. Front dull red-brown. All wings have a ground-colour of creamy or pale clay-yellow scales; over this is spread a thin covering of pink scales, leaving the cross lines and a narrow costal band of the ground-colour; these lines cross all wings, as in *chloroleucaria*, though more slender and slightly waved; no discal dots." Beneath paler clay-yellowish, forewing subcostally and near base tinged with pink. Arizona: Yuma County. — **rubromediaria** Cass. & Swett, equally unknown to me, must surely be a form of *appellaria*, perhaps synonymous. The description fits exactly, except that the forewing has the median area more reddened than the rest of the wing and an indistinct discal dot sometimes present. Utah: Eureka, a very long series. "A study of the genitalia shows good characters" as compared with *chloroleucaria*, but these are not published. I surmise that the authors overlooked *appellaria*.
- chloroleucaria*. **Ch. chloroleucaria** Guen. (= *rectilinea* Zell.) (8 b). On an average less small than *phyllinaria*, of which ZELLER supposed it a form, and readily distinguished by the straight postmedian line. Face rather bright orange-reddish. Palpus rather long, especially in the ♀. Common from Canada to California and Mexico. Larva with head strongly bifid, similar but smaller projections on prothorax, body much attenuated anteriorly, thicker behind; green, with head partly brown, a variable red-brown dorsal stripe often present, either continuous or interrupted. On various flowers, as Eupatorium, Achillea, Helianthus, Aster, Leucanthemum, etc. Pupa whitish, with a black dorsal stripe and sometimes much black or dark maculation; in a slight cocoon. Apparently double-brooded.
- densaria*. **Ch. densaria** Walk. (= *deprivata* Walk., *indiscriminata* Walk., ? *desolataria* H.-Sch.) is very close to *chloroleucaria* and I had supposed it synonymous, but I find the antennal pectinations of the ♂ are a little longer and continued to nearer the tip, the ♂ hindtibial hair-pencil perhaps a little stronger; postmedian line, on the whole, perhaps not quite so straight. Florida and ? Cuba; I have no Cuban material before me but believe *desolataria* represents this same species. The type of *indiscriminata* is a ♀; I therefore give precedence to the name *densaria*, published at the same date.
- triangularis*. **Ch. triangularis** Prout (8 c). Forewing somewhat more triangular than in *chloroleucaria*, hindwing with termen slightly more sinuous. Colour more olive green, postmedian line rather less straight. Mendocino County, California.
- inveterascaria*. **Ch. inveterascaria** Swett (8 c). "20 mm. Pectinations much shorter and stouter than in *chloroleucaria*. Forewing long, rather pointed, hindwing rounded; colour olive-green, extradiscal line whitish, on forewing regular, with a deep indentation at vein 2 and bent back at an angle on costa, on hindwing rather more rounded than in *chloroleucaria*. Seems nearest *volantaria*, extradiscal line not rounded outwardly but bent at an angle at costa. Tucson, Arizona, 1 ♂." The species from Palmerlee, Arizona, which we figure here as probable *inveterascaria*, is more robust than *volantaria* and with rounded, not bent hindwing.
- viridipallens*. **Ch. viridipallens** Hulst, of which the type is a faded ♂ from Colorado, is very similar to *volantaria*, but a little larger, and the hindwing seems paler and unmarked. Its supposed ♀ allotype from Arizona, is in any case a ♀ of *volantaria*, and it is not unlikely that the latter may have to sink as a synonym or race of *viridipallens*.
- volantaria*. **Ch. volantaria** Pears. (8 c). Closely similar to rather small and weakly-marked specimens of *masonaria*, but with the hindwing less strongly angled at the 3rd radial. Abdomen scarcely mixed with brown above. Arizona.
- masonaria*. **Ch. masonaria** Schaus. Variable. The small, typical form (17 mm) from Jalapa, Mexico, differs very little from *volantaria* except in the brown dorsal markings of the abdomen. Even in shape it seems somewhat less extreme than the larger boldly-marked forms which are prevalent in Costa Rica. — **hyperalla** form. nov. (8 c). Large, notably in the ♀♀, which have an average expanse of about 30 mm. Abdominal maculation reddish anteriorly, strongly fuscous posteriorly. Forewing usually with indications of a dark terminal line, interrupted

by minute whitish dots at the veins; cell-spots indistinct, but on the hindwing fairly large; fringe dark-spotted opposite the veins. Costa Rica, the type ♂ from Juan Vinas in my collection, kindly presented by Mr W. SCHAU. But for the transitions in shape indicated above, this would certainly have been regarded as a *Chloropteryx* with unusually broad hindwing.

31. Genus: **Chloropteryx** Hulst.

This genus, or perhaps better section of *Chlorochlamys* (see above) bears exactly the same relation thereto as does the Old-World *Hemithea* to *Chlorissa*. Except that the dorsal ornamentation of the abdomen, though generally pronounced, scarcely ever forms actual crests, it might be described as *Hemithea* with the antenna of the ♂, and occasionally even of the ♀, pectinate. The elongate hindwing, generally with rather sharp tail at the 3rd radial, separates it widely enough from typical *Chlorochlamys*, but in the first two species it is elongate without being tailed, so that they should perhaps be transferred to *Chlorochlamys*. The genotype belongs to the southern part of the Nearctic Region, but all the other species are Neotropical.

Ch. paularia Möschl. (= *punctata* Warr.) (8 c). A small and simple species, but not liable to be confused with any other. The white lines are always weak and are inclined to resolve themselves into mere vein-dots. Both the types were from Jamaica, but the species is also known from Cuba. *paularia*.

Ch. acerces Prout (8 c) is larger than the rest of the species and has the hindwing only quite weakly bent at the 3rd radial. Glossy, with strong iridescent reflections. Besides the type ♀ from Petropolis, I know only the Rio ♀ here figured from the JOICEY collection. *acerces*.

Ch. chaga Dogn. Another rarity, unknown to me. 21 mm (tip to tip measurement). Habitus of *Hemithea aestivaria* Hb. White, very densely irrorated with green; cell-spots darker green; a sinuous green post-median line, punctuated with white dots on the veins, the forewing also with a similarly formed antemedian; costa of forewing yellowish, spotted with grey; a grey terminal line, interrupted with yellow at the veins; fringe dirty white, marked with yellow between the veins. Loja, Ecuador, 1 ♂. *chaga*.

Ch. diluta Dogn. (8 d) differs from *chaga* in the longer pectinations, more elongate hindwing, more whitish green colour, absence of cell-spots on forewing and of white vein-dots on the lines, etc. West Colombia. *diluta*.

Ch. lechera Dogn. is whiter, only very finely marbled with pale green, the cell-spots indicated by an agglomeration of the green scaling; lines wanting; fringe concolorous; costa of forewing yellowish. Palpus of ♂ with 3rd joint moderately long. Likewise founded on a single ♂ from Loja. *lechera*.

Ch. spumosaria Dogn. A little larger than the two preceding (25 mm from tip to tip). Coloration as in *lechera*, but with the green lines present, on the forewing rather broad and nearly straight. Face and palpus olive-yellow (in *lechera* pale). The antenna "pectinated to the tip" should distinguish it from *opalaria* (8 d), as well as the larger size. Loja, founded on 2 ♂♂. *spumosaria*.

Ch. opalaria Guen. (= *albidata* Warr., *olvidaria* Schaus) (8 d). Antenna of ♂ with a rather long apical part non-pectinate. Somewhat variable in the width and the degree of sinuosity of the green lines or bands and extremely variable in size, the smallest ♂♂ only about 13 mm from tip to tip, the largest ♀♀ nearly 24 mm. Distributed almost everywhere from Mexico to Brazil, except on the W. coast. GUENÉE described it as an *Iodis*, with the locality given as "Central India?" It is therefore not surprising that a superficially similar Indian *Iodis* (*subtractata* Walk.) was misidentified for it until the publication of a good figure of it by OBERTHÜR. Very likely it was from Brazil, as is the specimen which we figure. *opalaria*.

Ch. viridicans Prout (8 d). Extremely similar to the largest *opalaria*, but predominantly green, leaving only dots and strigulae of white. Face and underside of costal margin of forewing more mixed with red. Distal margin of hindwing slightly excavated between the radials. Only known from Torné, Cauca Valley, Colombia. *viridicans*.

Ch. jalapata Dyar will perhaps prove a smaller form (18 mm as against 23—24) of *viridicans*, which was published only 3 weeks earlier. "Thinly scaled, dull green over pale grey; lines greenish, a trace of white edge to the outer only; a discal dot on hindwing; outer margin produced. Uniformly clouded like *albidata* Warr., but uniformly greenish, not white." Jalapa, 1 ♂. *jalapata*.

Ch. pacifica Prout (8 d) apparently replaces *opalaria* and *viridicans* in W. Peru. Hindwing rather less produced; the pale green ground-colour not mixed with white; the lines more slender, not band-like. Callao (loc. typ.) and east of Lima. Also believed to have been taken at Valparaiso. *pacifica*.

Ch. glauciptera Hmps. (8 d). Smaller, more iridescent and of a more glaucous or greyish green than *pacifica*, the lines white, strongly wavy, only slightly and indefinitely bordered with green in the median area. Forewing beneath without the reddish basal and anterior suffusions of the preceding group. Antennal pec-

tinations of ♂ rather long. Described from St. Vincent (type) and Grenada, but known also from others of the Lesser Antilles.

- languescens.* **Ch. languescens** Warr. (8 c). Antennal pectinations of the ♂ shorter. Otherwise not yet definitely differentiated from *glauciptera*, but perhaps rather greener in colour. Described from Dutch Guiana, but apparently extending as far as Costa Rica and Bolivia. Fresh material in the delicate species of this group is difficult to obtain.
- dealbata.* **Ch. dealbata** Warr. (8 d). Easily known by the uniform greyish olive forewing (only with white lines) and broad clear white median band of hindwing. Fringes spotted. Underside paler, with smoky apical patch on hindwing and sometimes a smaller one at tornus of forewing. S. E. Peru. A race (?) in Colombia, Venezuela and the Guianas.
- clemens.* **Ch. clemens** Warr. (8 d) is rather variable and may probably be a race (or series of races not yet differentiated) of *productaria*, as some specimens, especially in Peru, are more or less intermediate. Typically it differs markedly in that the white parts are much more dusted over with green and the green-edged postmedian line as well developed on the hind- as on the forewing. Underside similar to upper. Ecuador; also in Central America, from Colombia to French Guiana and southward to Peru, if not to Bolivia.
- productaria.* **Ch. productaria** H.-Sch. (8 e). Striking on account of the restriction of the green of the hindwing to a narrow terminal streak; the subterminal white of the forewing also more extended than in most *clemens*. S. E. Brazil.
- tepperaria.* **Ch. tepperaria** Hulst (8 e). Forewing rather broad, with distal margin gently curved and less strongly oblique than in the similar South American species that follow. Antenna of ♂ with the pectinations rather long. North Carolina to Florida.
- longipalpis.* **Ch. longipalpis** Warr. (8 e). Close to *hemithearia*, but of a rather greyer green and slightly intermediate in shape and markings between that species and *tepperaria*. It cannot be a race of *hemithearia*, as the ♀ palpus is longer — 2nd joint elongate, 3rd about as long as 2nd. Venezuela (type), Colombia, the Guianas and Amazons; a race (?) in Sao Paulo together with the following.
- hemithearia.* **Ch. hemithearia** Warr. (8 e). Moderately bright green when fresh, but fading to dark olive-buff or yellowish; the white lines strongest on the veins, on both wings strongly excurved in the middle. Antennal pectinations of ♂ rather short. Palpus of ♀ with 2nd joint moderate, 3rd joint less long than 2nd. S. E. Brazil.
- nordicaria.* **Ch. nordicaria** Schaus (8 e). Distinguishable from *tepperaria* and *hemithearia* by the presence of sharply blackish cell-dots and by the slightly more sinuous margin of the forewing and rather more sharply tailed hindwing. Pectinations intermediate between those of the species named. Variable in size, but generally quite small. Mexico and extending northward to Texas, southward to Costa Rica.
- munda.* **Ch. munda** Warr. (8 e) with still stronger black cell-dots, is closer to *hemithearia* in size and shape. The type ♂, from La Plata town, is badly faded and I know no other material from that region. It has, however, about the structure of the insect which we here figure (from French Guiana) on the assumption that it is a race of it: ♂ with pectinations rather short, hindtibia very long, with pencil and moderate terminal process, tarsus strongly abbreviated. If this (which is known from Panama, Trinidad, Venezuela, the Guianas and Amazons) proves to be a recurrent black-spotted aberration of *longipalpis*, the true *munda* may prove to be a parallel aberration of *hemithearia*.
- punctilinea.* **Ch. punctilinea** Dogn. (8 e) differs from *hemithearia* and *longipalpis* in the absence of the dark spots on abdomen and in having blotches on the underside as mentioned under *dealbata* (8 d). Forewing, indeed, very much as in that species, but with the white lines expressed chiefly, or only, by dots on the veins; hindwing concolorous. ♀ palpus about as in *longipalpis*. Pectinations of ♂ moderate. Guianas, described from Maroni River. Also Colombia, Lower Amazon and E. Bolivia.
- fontana.* **Ch. fontana** sp. n. (8 e). Appreciably larger than *punctilinea* ♂, the blotches of the underside less strong, more flesh-coloured, only becoming strongly darkened close to the fringes; a great part of the forewing beneath more or less suffused with flesh-colour, nearly as in the following species. Hindtibia with hair-pencil, but with the terminal process vestigial (in *punctilinea* rather long). Pectinations short, the longest only about twice the diameter of the shaft. Abdomen with dark spots, but generally weaker or more interrupted than those of *hemithearia*. Upper Amazon: Fonte Boa, May and June 1906 (S. M. KLAGES), 7 ♂♂ in Mus. Tring. A ♀ from the same source, August 1906, which probably belongs with them but was misidentified by WARREN (Nov. Zool., Vol. 16, p. 76) as *subrufescens*, is rather larger, the 3rd joint of the palpus unusually short for a *Chloropteryx*, the hindlegs unfortunately lost, the abdomen discoloured.
- subrubens.* **Ch. subrubens** sp. n. (8 f), which has also been mistaken for *subrufescens*, has about the size and general aspect of *fontana*, though of a deeper grey-green and with the abdominal spots stronger. Hindtibia

of ♂ not dilated. Palpus of ♀ with 3rd joint very long. Differs from *subrufescens* in its considerably larger size, shorter pectinations and in having the normal venation of *Chloropteryx*; the blotches beneath faint (pinkish) or obsolete. Carabaya: La Oroya and Tinguri (OCKENDEN), the type from the former locality, in Mus. Tring. Colombia: Upper Rio Negro.

Ch. pallescens Warr. (8 f) agrees with *subrubens* in the simple ♂ hindleg but is larger, paler and greener, *pallescens*. apex of forewing and tail of hindwing rather acute. Underside pale, without blotches or pink suffusions, the costal edge of the forewing black proximally. ♀ unknown. Oconeque, Carabaya, at 7000 feet.

Ch. stigmatica Warr. (8 f) differs chiefly from *pallescens* in its strong black cell-dots. A still larger *stigmatica*. species, with dark abdominal spots. Base of costa beneath ochreous; at most with some black speckling. Hindleg of ♂ as in the two preceding. The type was from Paraguay, but a good series has since been obtained from Peru and Colombia; also known from S. E. Brazil.

Ch. anisoctena Prout (8 f). Confusingly similar to *fontana* and *subrubens*, unless account be taken of *anisoctena*. the antenna, which is shortly (in the ♀ very shortly) pectinate on the inner side but merely dentate (♂) or almost simple (♀) on the outer. Hindtibia of ♂ with strong pencil and terminal process. Apical blotch (or streak) of hindwing narrow but strong. Palpus of ♀ with 3rd joint strongly elongate. Venezuela, Guianas, Amazons, S. E. Peru and Paraguay, the type from the first-named country.

Ch. subrufescens Warr. (8 f). A very small species, named from its strongly reddish (or, rather, deep *subrufes-* flesh-coloured) forewing beneath. Antenna of ♂ with moderate pectinations, of ♀ simple. Hindleg of ♂ simple. *cens*. Venation of forewing very characteristic, the 1st subcostal being stalked beyond the 1st radial, which is also stalked. Terminal blotches beneath developed. French and British Guiana and occasionally in Colombia.

32. Genus: **Eualloea** Warr.

A development of *Chlorissa*, with the same hindtibial structure (2 spurs and a pencil in the ♂, 4 spurs in the ♀) but with short and simple ♂ antenna; anteriorly excavated termen of forewing; shortish palpus in the ♀, etc. In the relatively large size and in the shape it recalls the *Episothalma* of India, but the abdomen is not crested. One species.

E. subbifasciata cannot be confused with any other species. I have little material before me, but there *subbifascia-* seem to be two races. — **subbifasciata** Warr. (8 f) has both the lines of the hindwing (postmedian and subterminal) *ta*. developed on the whiter underside. S. E. Peru. — **suffusa** Warr., from Fonte Boa, is more uniformly suffused *suffusa*. above and lacks the postmedian on the hindwing beneath.

33. Genus: **Neocrasis** Warr.

Shape still more extreme than in *Eualloea*, antenna of ♂ pectinate. Hindlegs lost in the unique type; ♀ unknown to me. May probably prove a mere shape-section of *Chloropteryx*, but *eximia* Dogn., which is provisionally regarded as congeneric, has 4 spurs on the ♂ hindtibia.

N. eximia Dogn. Face broad and rounded. Antennal pectinations short, subclaviform. Hindtibia with *eximia*. very short process. "23 mm. Uniform dark green, each wing with a small brown cell-dot and 2 yellowish lines; the first, antemedian, rounded; the second, elbowed beyond the cell on the forewing and opposite the central angle on the hindwing. Costa brown, terminal line brown, fringes brown cut with yellowish." Loja, 1 ♂. Facies of a *Hemithea* or dark *Chloropteryx*.

N. obscurata Warr. (8 f). Of this species, also, only the type is known and this is not in perfect condition, *obscurata*. but our figure should make it recognizable. Pectinations shortish-moderate, not at all claviform. Underside pale, especially the hindwing; both wings with cell-spot stronger than above, and with a broad dark subterminal band, on the hindwing complete, on the forewing weakening from 3rd radial forward, not reaching the costa. "Colombia" (probably Bogota district), 1 ♂.

34. Genus: **Prohydata** Schaus.

This genus and the three which follow form a very natural group. Small, delicately-built moths with more or less strongly hyaline wings. Antenna pectinate in the ♂ and often in the ♀. Venation of forewing characteristic, in that the 2nd subcostal is stalked beyond the 5th. *Prohydata*, which is hardly more than a section of *Hydata*, agrees therewith in having all the spurs present on the hindtibia (the ♂ generally also with a long spur-like process) and only differs in that the costal of the hindwing only anastomoses very slightly, if at all, with the subcostal. Hindwing rather irregular in shape, dentate at the 1st and generally at the 3rd

radial, but more particularly at the 1st. The group is exclusively Central and South American. Of the early stages nothing is known.

- completa.* **P. completa** Dogn. "31 mm. Semihyaline, pale greenish yellow, the markings pale violaceous grey: an antemedian and postmedian, both fine, rounded and dentate; a broad subterminal band of irregular extent, rounded. In addition, some rounded discal spots, twice as large on the forewing and, on this wing only, a rounded subbasal band." Quindiu, Colombia, at 3500 m, only the type ♀ known. Much larger than the other species, yellower than most.
- benepicta.* **P. benepicta** Warr. (8 g). Distinguished by the broad and bright outer band, which becomes violet-grey on the forewing anteriorly. Fonte Boa, 1 ♂. Besides, I only know a ♂ from S. E. Brazil (Mus. Wien).
- aurata.* **P. aurata** Dogn. Closely related to *brunneopicta* (8 g), similar in shape and in its yellowish, iridescent ground-colour, as well as the general scheme of the markings; these, however, are more green, the subterminal band dentate proximally, connected with the terminal so as to leave only spots of the ground-colour, on the forewing in cellules 5, 4, 3, 2 and at tornus, on the hindwing (which, moreover, is less heavily clouded) in cellules 7, 6, 5 and 4. Colombia: San Antonio, near Cali.
- brunneo-*
picta. **P. brunneopicta** Warr. (8 g) from Carabaya, S. E. Peru, is easily recognizable from our figure. A specimen from Cushi, Huanuco, is somewhat transitional towards *aurata* in the form of the outer band.
- ignita.* **P. ignita** Prout (5 k), founded on a ♀ from Cachi, Costa Rica, may possibly prove to be the ♀ of the following, but looks very different on account of the broader reddish costal suffusion and the extended dark cloudings of the forewing.
- busa.* **P. busa** Druce (5 i) is unknown to me, but will be easy to distinguish from most *Prohydata* ♂♂ by the absence of the apical patch of the forewing and presence of costal stripe. Chiriqui.
- stigmatica.* **P. stigmatica** Warr. (8 g). Quite unlike all other known *Prohydata*. From *Hydata scripturata*, even the most heavily marked aberrations differ in their brighter green colour, less black lines, etc. Costa Rica (type) to Peru. Its systematic position is, however, somewhat problematical, as a few scarcely distinguishable specimens have the venation of *Hydata*.
- pellucidaria.* **P. pellucidaria** Dogn. should be distinguishable from the species of the following group by the stronger cell-spot of the forewing and the reduction and weakening of the other markings; in particular, those of the hindwing merely form two spots along the abdominal margin, from which spots there arise sinuous lines, parallel to the distal margin. Loja, S. Ecuador, 3 ♂♂. — **versifusa** form. nov. (8 g), determined by Mr. WARREN as *pellucidaria*, may be a race of that species (with which I am not able to compare it), but in any case not a synonym. More strongly marked, the two lines of the hindwing thick, but obsolete anteriorly, on the underside distinct, but on the upperside almost entirely obliterated by a large dark cloud. Carabaya: Tinguri, 3400 feet, the type ♂; Santo Domingo, 6000 feet, 2 ♂♂; all in the Tring Museum, collected by OCKENDEN. May probably prove a species; distinguishable from the following group by the clear green costal area of the hindwing.
- digma.* **P. digma** Dogn. (8 g) differs from the rest of the group in having a semicircular terminal patch of the ground-colour on the posterior half of the hindwing. We figure the only Bolivian example available, although its hindwing is slightly discoloured proximally and has the dark distal part somewhat less extended. Besides this, the type locality, *digma* is known from S. E. Peru.
- latifasciata.* **P. latifasciata** Warr. (= *dicata* Dogn.) (8 g) was described from the ♀, in which the forewing has a complete subterminal band, at least 3 mm wide, connected with the margin in cellule 3; the ♂, which we figure, is extremely similar to those of some of the allies, but (like the ♀) is best known by the very obliquely bounded basal patch of the forewing. S. E. Peru. The type of *dicata* Dogn., which I confidently sink, was a ♂ from Bolivia.
- povera.* **P. povera** Schaus (= *satisfacta* Druce, nec Walk.) (5 k). Sexual dimorphism about as in *latifasciata*, the band of the forewing in the ♀ almost reaching the termen except near the apex; basal patch at least as broad at costa as behind. Described from Mexico, but reaches Venezuela and Trinidad.
- projiciens.* **P. projiciens** Prout (8 h) is rather larger, weakly marked and may be regarded as blending the characters of the 3 preceding species; basal patch nearly as oblique as in *latifasciata* (8 g), but less regular; cell-mark of forewing as weak as in this and in *povera*, that of hindwing strong; border of hindwing nearly as in *digma*. W. Colombia (loc. typ.) and Peru.
- popayanaria.* **P. popayanaria** Dogn., of which the ♂ type, from Popayan, remains unique, is also relatively large (22 mm from tip to tip); yellowish green, the forewing with the lines irregular, darker, the subbasal fine, not bounding a dark patch, the subterminal anteriorly thickening and sending out two streaks to the termen, so as to recall the markings of the 4 preceding species; hindwing with the central part darkened and with a vague, rounded subterminal line.

P. vitrearia *Schaus*. "22 mm. Forewing olivaceous; the median space between subcostal and submedian veins semitransparent, pale green; a green discal spot; a small apical pale green spot. Hindwing olivaceous, a basal transverse semitransparent line pale green; a dark outer transverse line; the outer margin and fringe paler green." Aroa, Venezuela. This is a ♀ form and I suspect may refer to the ♀ of *povera*. *vitrearia*.

P. subpartita *Dogn*. Near *propinqua* (8 h), the forewing rather broader, the hindwing less produced at the 1st radial; forewing with more green at the apex, hindwing with the grey band narrowing towards abdominal margin (in *propinqua* widening). The costal vein of the hindwing anastomoses at rather more than a point, but not so markedly as is usual in *propinqua*. Medina, E. Colombia. *subpartita*.

P. propinqua *Prout* (8 h). Closely resembles a larger *Hydata translucidaria* (8 i) and forms a troublesome transition between the two genera; the costal vein of the hindwing runs close to the cell for a considerable distance and although the actual anastomosis is sometimes confined to a point rather far from the base yet at other times this anastomosis becomes more extended. Apical patch of forewing rather large; green border of hindwing typically narrow. E. Peru. *propinqua*.

P. apicata *Schaus* (8 h). After examining (somewhat hastily, in the United States National Museum) the type of this species, I fear that my *propinqua* must sink; having described the latter as a *Hydata*, I overlooked the possibility. The specimen which we figure, from Santo Domingo, Carabaya, was determined by WARREN as *apicata*, agrees accurately with the description and seems at most a small local form of the preceding species. Various allied, but not identical, forms from Central America, Colombia, Venezuela, British Guiana and the Amazons have also been determined as *apicata*. *apicata*.

P. exsignata *Dogn.*, founded on a rather large ♀ (25 mm from tip to tip) from Pacho, Colombia, is compared with *latifasciata* (8 g) but has the hindwing more acuminate at the 1st radial, the forewing with a distinct opaque cell-spot, the broad dark olive-grey border cut with reddish along veins 1, 2 and (more slightly) 3, 4 and 5 and with a proximal sinus between veins 5 and 6. Perhaps nearer to *vitrearia*, but with the pale median area of the forewing very much wider at costa than at its posterior end. *exsignata*.

35. Genus: **Hydata** *Walk.*

Distinguished from *Prohydata*, as noticed above, by the strong, Larentiid-like anastomosis of the costal vein of the hindwing; 2nd subcostal and 1st radial as a rule longer stalked, sometimes nearly to the apex.

H. translucidaria *H.-Sch.* (= *sordida* *Schaus*) (♂ 5 k, ♀ 8 h). Quite distinct from all other *Hydata*, phylogenetically in the direct line of descent from the *Prohydata apicata* group. HERRICH-SCHAEFFER figured a ♀ as "♂" and SCHAUS — then unaware of the sexual dimorphism of the group — described the true ♂ as *sordida*. S. E. Brazil. *translucidaria*.

H. satisfacta *Walk.* (= *spilosata* *Warr.*) (8 h) somewhat resembles lightly-marked ♂♂ of *translucidaria* on the forewing; hindwing hardly angled at the 1st radial, predominantly pale yellow-green (as the forewing), but with prominent dark spot at abdominal margin. ♀ similar to ♂, but with palpus extremely long, antenna not pectinate. Brazil (loc. typ.) and Argentina. *satisfacta*.

H. felderi *Schaus* (8 i). Markings rather extensive, but shadowy; hindwing less heavily darkened than in *translucidaria* and the similar *Prohydata* species and rather better rounded, the angle at the 1st radial very weak. ♀ with subterminal band of forewing more developed posteriorly. Mexico. *felderi*.

H. diaphana *Warr.* (8 i). A striking little species, very heavily marked, all the remnants of the white-green ground-colour small, except in the apical region of the forewing. S. E. Peru: Santo Domingo. *diaphana*.

H. radiata *Warr.* (8 i). Larger than *subfenestraria*, the forewing with narrower subterminal band and less broadly interrupted pale band beyond it. E. Peru: Cushi, Huanuco. *radiata*.

H. subfenestraria *Walk.* (8 i). Easily known by the broad bisection of the pale median area. Variable in size. Described from Venezuela, but extending to Panama, Peru and Brazil. *subfenestraria*.

H. oxytona *sp. n.* (6 i). Closely like the largest Carabaya forms which we refer to *subfenestraria* (8 i), but still larger (29 mm), ♀ palpus a little less long, antennal lamellae perhaps deeper, forewing with termen more sinuous, hindwing with a much sharper tooth at the 1st radial and a definite concavity between this and the 3rd; the grey parts more violet-tinged, the hyaline subbasal band and pale postmedian line of the hindwing a little widened. Agualani, Carabaya, S. E. Peru, 9000 feet (G. OCKENDEN), type in Mus. Brit. ex coll. OBERTHÜR. Perhaps a high-altitude form of the preceding, as some from 6000 and 7000 feet seem slightly intermediate, yet the venation suggests a *Prohydata*. *oxytona*.

H. notula *Dogn.* "18 mm. Very pale olivaceous, opaque, the forewing with the following semihyaline spots: a broad submedian commencing at the first third of the wing, embracing the first half of vein 2 and *notula*.

terminating on the base of vein 3 and below the submedian fold; a small postdiscal spot from vein 5 to 7; a very small subapical." Rio Songo, Bolivia, 2 ♂♂. Shape of wings as in *alada*.

alada. **H. alada** Dogn. "22 mm. Form of *busa* Druce. Almost exactly recalls *subfenestraria* (8 i), but this latter species has the hindwing rounded. Forewing with base, a broad costal spot at the end of the cell and the last third of the wing opaque, pale greenish yellow, the rest of the centre, a small subapical dot and a small dot at the inner angle vitreous. Hindwing opaque, of a warmer yellowish." Loja, 1 ♀.

metaloba. **H. metaloba** *sp. n.* (8 i). I have not been able to find any existing description of this small *Hydata*, which recalls *Pachycopsis malina* but has all the spurs of the hindtibia developed. It is characterized by the shape of the hindwing, which is noticeably lobed at the 3rd radial to 1st median, at least as prominent at the latter vein as at the former, generally, indeed, more so, so that the concavity reaches from the 1st radial to the 1st median. Markings shadowy, not (as in *scripturata*) blackish; cell-spot of forewing large, bands placed nearly as in *P. malina*, the subterminal, at least on the forewing, rather strongly interrupted, but forming a well-developed costal spot. Hindwing with 2nd subcostal extremely long-stalked, as in *Pachycopsis*. S. E. Peru: La Oroya, Tinguri, etc., the type ♂ from La Oroya in Mus. Tring. Also known to me from Colombia.

scripturata. **H. scripturata** Warr. (8 i) approaches *metaloba* in the shape and venation of the hindwing, but has a very distinctive pattern of zigzag blackish lines, in part interrupted, in part confluent. S. E. Peru. Also one example known from Upper Rio Negro, E. Colombia, possibly differing racially.

elegans. **H. elegans** Bastelb. (5 i). Markings slight, excepting the bent subbasal band of the forewing and ill-defined subterminal band of both wings; forewing (as in *satisfacta*) also somewhat darkened at costa, a weak dark costal postmedian spot noticeable. E. Peru: Huancabamba, only the type known.

36. Genus: **Methydata** *gen. nov.*

A development of *Prohydata* Schaus, very distinct in that the palpus is quite short, even in the ♀, and the hindtibia in both sexes has terminal spurs only. Antenna in ♀ pectinate. Hindwing with termen weakly sinuous, the costal vein anastomosing at only a point with the subcostal. Type of the genus: *auster* Prout (described as *Prohydata*). The palpus and venation preclude placing this species in *Pachycopsis*.

auster. **M. auster** Prout (8 i). Recognizable by the structure. Moreover it is the only species yet known from S. E. Brazil with this type of maculation, which somewhat recalls that of *P. stigmatica*. The ♀ is similar to the figured ♂, but a little more weakly marked.

37. Genus: **Pachycopsis** Warr.

Derived from *Hydata* by the loss of the proximal spurs of the hindtibia; the ♂ retains the long slender process which might, on casual inspection, be mistaken for a third spur. Palpus in the ♀ with 3rd joint elongate. Antenna in the ♀, so far as yet known, deeply lamellate. Hindwing with distal margin sinuous, but without distinct angles, costal vein anastomosing with subcostal to beyond middle of cell, 2nd subcostal extremely long-stalked with 1st radial. Only a few species, all Neotropical.

aurata. **P. aurata** Warr. is as good as unknown, as the type ♀ is in very bad condition and probably discoloured. WARREN proposed for it a genus *Paraplodes*, but its structure shows it to be an absolutely typical *Pachycopsis*. "16 mm. Yellowish green, without any markings. Fillet and base of antenna snow-white." Pambilar, Ecuador. A careful examination shows remnants of greener patches which would indicate the opaque markings of the allies and suggest that it might be a small *malina*.

malina. **P. malina** Butl. (8 i) is very difficult to obtain in good condition, but can, as a rule, be easily distinguished from *tridentata* by its more variegated appearance, the forewing with large cell-spot, the hindwing with strong spot at middle of abdominal margin, the dentate white lines less slender and more mixed with yellow. BUTLER'S type was from the Amazons, but the species has since been found in Colombia, Ecuador and French

tabogana. Guiana. — **tabogana** *subsp. nov.* is larger (20 mm), paler, the hyaline areas extended, the subterminal green band more macular, the dark cell-spot of the forewing remaining large and conspicuous. Taboga I., Panama, type ♀ in coll. Brit. Mus. Perhaps a separate species, intermediate towards *caducata*.

caducata. **P. caducata** Feld. (5 i). The ♀ is unknown to me and until recently I had only seen FELDER'S broken type from French Guiana and referred the species conjecturally to *Hydata*. 4 good ♂♂ from Taperinha, near Santarem (Dr. ZERNY) are smaller but otherwise agree absolutely and show that it is a *Pachycopsis*, distinguishable from *malina* by the small cell-spot and darker, more opaque markings, the subterminal band of the hindwing greatly broadened.

P. tridentata Warr. (8 k). On an average smaller than *malina*, more uniform and rather brighter green, *tridentata*. very neatly marked with fine white lines and white terminal dots. French Guiana (common), Surinam and the Amazons. A race (?), with cell-spots more suggestive of *malina*, in E. Colombia.

P. lunifera Warr. (8 k). A pretty species, very similar to *tridentata* but less small and with the white *lunifera*. lines less slender, very conspicuous. Carabaya, S. E. Peru.

38. Genus: **Eueana** Prout.

Palpus moderate (♂) or elongate, with the terminal joint very long (♀). Antenna in ♂ with long pectinations, in ♀ not pectinate. Hindtibia with terminal spurs only. Abdomen not crested. Venation normal, 1st median of both wings separate, costal of hindwing anastomosing at a point with the cell. Systematic position uncertain; the early stages perhaps suggest more connection with the *Chloropteryx* group than with *Racheospila*, with which it was at one time associated.

E. eucrines Prout (6 k). Provisionally referred to this genus although the 1st subcostal of the forewing *eucrines*. arises from the cell (anastomosing strongly with the costal), whereas in the genotype (*niveociliaria*) it is stalked with the other subcostals. The white, proximally purple-edged postmedian line and the two large dull-purple spots of the hindwing are characteristic. Buenavista, E. Bolivia, only the type known.

E. niveociliaria H.-Sch. (= *saltusaria* Hulst.) (8 k). Variable in size and in the extent of the markings *niveociliaria*. but easy to recognize. It is the only American species known to me which reminds (superficially) of the African genus *Rhodesia*. Larva on *Condalea ferrea*, mimicking closely a young twig of the food-plant; head strongly bilobed, the lobes becoming, in the adult larva, conical horns; prothorax with 2 prominences directed forward; body otherwise slender, rigid, cylindrical, minutely granulated with white. Cuba (the type of *niveociliaria*), Florida (the type of *saltusaria*), Jamaica and the Bahamas.

39. Genus: **Telotheta** Warr.

Most characters as given under *Eueana*, though there is little superficial sign of relationship; cells short, 1st median vein of both wings stalked. One species.

T. muscipunctata Dogn. (= *chlorostigma* Warr.) (8 k). Blue-green, with white strigulae (like a *Prasinocyma*) and conspicuous darker green cell-spots. Costa Rica to Peru and Venezuela, described from Ecuador. *muscipunctata*. Not variable except in size.

40. Genus: **Callisteuma** Prout.

Differs from *Eueana* in that the antenna is pectinate in the ♀ as well as in the ♂, and especially in that the costal vein of the hindwing anastomoses with the subcostal to beyond the middle of the cell; 1st subcostal of forewing from the cell, 1st median also from the cell; 1st median of the hindwing generally from the posterior angle of the cell. Erected for *fringillata* Schaus; a second species is here added.

C. hebescens sp. n. (6 k) agrees absolutely in the structural characters with the genotype unless the *hebescens*. ♀, still unknown, should prove to differ in the antenna or hindleg, which is very unlikely; much smaller, without such distinct white veins and wanting the cell-spots and the spot-like expansion of the lines at hindmargins; postmedian of forewing rather less curved, antemedian of hindwing more proximal and more curved. Bahia: Alagoinhas (PENTHER, Bras. Exped.), 9 ♂♂, the type in Mus. Wien.

C. fringillata Schaus (5 k). A very elegant species, which we have already differentiated from the prece- *fringillata*. ding. Only known from S. E. Brazil, chiefly Castro, Parana, where it appears to be quite plentiful.

41. Genus: **Dyscheilia** Dogn.

♂ unknown. Palpus of ♀ scarcely as long as diameter of eye, 2nd joint shortly rough-scaled, 3rd joint short and slender. Tongue present, though slender. Antenna of ♀ rather strongly pectinate (tips lost in the unique type). Hindtibia with terminal spurs only. Abdomen rather robust, not crested. Forewing with 1st subcostal stalked, anastomosing with costal. 1st radial stalked beyond 1st subcostal, 1st median separate. Hindwing not angled; costal approximated to subcostal to about middle of cell, then rapidly diverging. 1st radial stalked, 1st median very shortly stalked.

D. inornata Dogn. Unicolorous green, recalling in shape and colour a rather light *Omphax*, but small *inornata*. (19 mm from tip to tip). Argentina: San Ignacio, Upper Parana, 1 ♀.

42. Genus: **Xanthoxena** Warr.

Of this genus also the ♂ is unknown and its actual relationships are further obscured by a mimetic resemblance to the *Cyllopoda* group. Eye small; palpus moderate; antenna strongly pectinate; hindtibia with terminal spurs only; abdomen not crested. Venation nearly as given under *Dyscheilia*, but the 2nd subcostal arises beyond the 5th (in *Dyscheilia* normal) and the 1st median of both wings is stalked.

imitans. **X. imitans** Warr. (8 k). Absolutely distinct in its bright gold-yellow colour and black borders. Ecuador: Cachabé, low country, only the 3 originals known.

43. Genus: **Cathydata** Prout.

In this genus and those which follow, perhaps also in one or both of the preceding, the frenulum is wanting not only in the ♀ but also in the ♂. For the rest, *Cathydata* has mainly the characters of *Neagathia*, but with longer palpus (in the ♀ exceptionally long), still more hyaline wings (recalling the *Hydata* group), deeper excision in the hindwing and very peculiar discocellulars, which form two separate, outwardly oblique curves, the 3rd discocellular arising far distally of the 2nd, especially on the hindwing; 1st median of both wings generally stalked.

batina. **C. batina** Druce (8 k). Easily known by the shape and markings. Described from Guatemala, but reaches *schadei.* Peru and Venezuela. — **schadei** *subsp. nov.* (8 k). Thorax posteriorly and abdomen at base infuscated above; wings slightly less elongate, especially the hindwing at the 3rd radial; all the markings darker and more opaque, particularly the basal patch and the thick postmedian line. Brazil: Blumenau, Santa Catherina, 26 April 1929 (F. SCHADE), type ♂ in coll. JOICEY. Although I have seen few other *schadei*, the general constancy of *batina* in Tropical America leaves no doubt that this is a good race.

44. Genus: **Chloractis** Warr.

Near *Cathydata*, which might possibly be sunk to it. Differs in its less elongate palpus, lack of concavity in the termen of the hindwing and in having the discocellulars normal or — in the genotype, *pulcherrima* — with the 3rd strongly incurved.

tanaoptera. **Ch. tanaoptera** Prout (8 l) recalls a semihyaline, long-winged *Phrudocentra*, but the loss of the ♂ frenulum necessitates its being placed here. The heavily bordered, but otherwise little clouded wings, as well as the shape, distinguish it readily from the following. French Guiana (type) and Lower Amazon.

obnubilata. **Ch. obnubilata** Warr. (8 l). Shorter and broader winged than *tanaoptera*, postmedian line of hindwing straight, posterior part of forewing and nearly the whole of hindwing dark-clouded above and especially beneath. Guianas and Amazons, the type from French Guiana.

pulcherrima. **Ch. pulcherrima** Butl. (8 l). Strikingly distinct in its pattern, particularly the strong longitudinal lines of the distal area. Widely distributed: Trinidad, Colombia to French Guiana, and a very extensive area in Brazil, even reaching Joinville; the type from the Brazilian Amazons.

45. Genus: **Dichordophora** Prout.

Coloration and pattern of *Dichorda*, from which it scarcely differs radically except in the absence of the ♂ frenulum. The two known species form separate sections, the proximal spurs of the hindtibia being present in *aplagaria*, wanting in *phoenix*. Both belong to subtropical North America and seem very closely related.

aplagaria. **D. aplagaria** Dyar (8 l). Very similar to *phoenix*, 3rd joint of palpus in ♂ perhaps a little longer, hindwing with abdominal margin longer in proportion to costa; costal ornamentation rather broader, lines perhaps rather straighter. I have not seen the ♀. Mexico (type) and Guatemala. A transition between *Dichorda* and *Dichordophora*.

phoenix. **D. phoenix** Prout (8 l). The type of the genus and — so far as is at present known — its only representative in the United States. For the distinctions from *aplagaria* see above. Antenna of ♀ pectinate. Arizona.

46. Genus: **Merochlora** Prout.

Related to the first section of *Dichordophora* but somewhat different in shape, tone of colour and markings and characterized by having the costal vein of the hindwing anastomosing with the subcostal to beyond the middle of the cell. North American. I have no knowledge of the early stages.

M. faseolaria Guen. (= *fasceolaria* Pack., *perviridaria* Pack., *fasciolaria* Hulst) (8 l) may be likened to *faseolaria*. a small *Chlorosea* (often much smaller than the specimen which we figure). Face, palpus and foreleg bright rosy. Abdomen without dorsal ornamentation. Apex of forewing rather blunt. Distributed in California.

M. graefiaria Hulst (= *eutrappes* Prout). Considerably larger than *faseolaria* (8 l), distal margin of forewing slightly more oblique, making the apex appear more pointed; palpus green, beneath white, only the extreme tip reddish; crown of head and costa of forewing also without the red lines which are observable in *faseolaria*; groundcolour of forewing somewhat lighter green than in that species. HULST'S description was unintelligible and his type was faded almost white; we are indebted to BARNES and McDUNNOUGH for the synonymy. Nevada (type), Utah (type of *eutrappes*) and California.

47. Genus: **Anomphax** Warr.

Palpus in both sexes very short. Tongue rudimentary. Antenna in both sexes pectinate almost to the apex, the branches long in the ♂. Hindtibia with terminal spurs only. Abdomen rather slender, not crested. Forewing with venation normal, 1st median well separate. Hindwing with costa rather long, costal vein approximated to cell for a considerable distance but without anastomosis, 1st median well separate. As with the greater part of the Chilian fauna, this genus shows little affinity with those of the rest of the continent. There is only one species.

A. gnoma Butl. (8 l). Readily known by the structure, shape, absence of lines and white hindwing. Larva slender, firm, twig-like, the head and probably the prothorax with anterior bifid pointed projection. Chili, Patagonia and N. W. Argentina (Salta).

48. Genus: **Eucrostes** Hb.

Palpus moderate, in ♀ with 3rd joint more or less elongate. Antenna pectinate in both sexes. Hindtibia with terminal spurs only. Abdomen not crested. Forewing with 1st subcostal anastomosing with or running into costal. Hindwing with cell rather short, costal vein anastomosing at a point, 1st median stalked. A widely distributed Old-World genus of small but relatively robust moths of pretty uniform structure and coloration; a single species — so far as it is at present understood — has unaccountably obtained a wide distribution in the West Indies and South America, though nowhere common. See further Vol. 4, p. 33.

E. dominicaria Guen. (8 i). Very similar to the European *indigenaria* Vill. but smaller, perhaps of a more yellowish green; costal margin of forewing broadly yellow; cell-dot of hindwing larger than in *indigenaria*; forewing beneath strongly suffused with red anteriorly. Haiti (type) and doubtless some others of the West Indies; also known from Florida, Venezuela, Bahia and even Bolivia.

49. Genus: **Urucumia** gen. nov.

Palpus in ♂ short. Tongue developed. Antenna of ♂ (probably also of ♀) pectinate, the branches long, apex not pectinate. Hindtibia slender, with terminal spurs only. Abdomen with glossy crests. Frenulum wanting. Forewing with cell about $\frac{1}{2}$, 1st subcostal from cell, anastomosing rather strongly with costal, 2nd—5th long-stalked, the 2nd separating first, 1st radial shortly stalked, 1st median just separate. Hindwing with termen bent at 3rd radial, slightly concave before the bend, straightish behind it; cell not quite $\frac{1}{2}$, costal closely approximated to subcostal for a short distance near base, moderately rapidly diverging, 2nd subcostal stalked for nearly half its length, 1st median very shortly stalked. Type of the genus: *Urucumia acymanta* sp. n. Probably derived from the *Oospila* group by the loss of the frenulum.

U. acymanta sp. n. (8 h). Face dull pale reddish, the lower third whitish. Vertex and antennal shaft white. Abdominal crests glossy purple-red. Bright green, costal edge of forewing narrowly buff; cell-dots small, red; the fine red terminal line slightly interrupted at the veins; fringes whitish buff with rather large but not very strong red spots opposite the veins. Underside whitish green, the forewing with extended proximal flush of dull reddish, the hindwing with traces of the cell-dot. Matto Grosso: Urucum, 15 miles S. of Corumbá, 650—900 feet, 18—21 April 1927 (C. L. COLLENETTE), 4 ♂♂ collected for Mr. J. J. JOICEY. There is also a Matto Grosso ♂ (P. GERMAIN, 1886) in Mus. Brit., ex coll. OBERTHÜR.

U. (?) semicaudata Prout (8 g). Less small, palpus shorter still, tongue slighter, forewing with termen more sinuous, 1st median just stalked, hindwing more strongly angled. Distinguishable at a glance by the terminal blotches. In the absence of the ♂ the position is not quite certain. Brazil: Espiritu Santo, 1 ♀.

3. Subfamily: **Sterrhinae**.

This subfamily, as at present defined, shows some very interesting and remarkable developments in the New World. The study of the genitalia, indeed, as well as the divergences in wing-shape and colour-scheme, raises some doubts whether it is so natural a group as was at one time believed; yet the combination of easily recognizable characters renders it desirable to treat it provisionally as a taxonomic entity. These characters are the smooth face, frequent modifications of the armature of the hindleg, especially in the ♂, almost invariable presence of all the veins on both wings (see, however, *Epicleta* [Vol. 16], *Goniacidalia*, *Aphanophleps*), presence of one or two areoles in the forewing (only rarely replaced by stalking of all the subcostals or all except the 1st), full development of the frenulum, point-anastomosis of the costal vein of the hindwing with the cell, strength and general position of the 2nd radial of this wing, besides other details less capable of concise definition. Peculiar to America are two quite remarkable groups, the *Asellodes* group and the day-flying yellow species which have been considered to constitute not only a separate subfamily but even a separate family, the *Cylopodidae* (pars typica) of KIRBY'S well-known Catalogue. Further, the *Sterrha* group shows here still more diversity than in the Old World, not only as retaining a considerable element with double areole — presumably the forerunners of *Sterrha* proper — but also as producing a very large number of ♂ modifications which have been made by WARREN and others the basis of separate genera but are here regarded as subgenera, the ♀♀ usually remaining very homogeneous. The life histories of a few of the North American *Sterrhinae* have been worked out, but those of the Neotropical remain almost entirely unknown.

1. Genus: **Rhodostrophia** Hb.

This genus, which is chiefly Palaearctic and Himalayan, is discussed in Vol. 4, p. 35 and it need only be repeated that it is characterized chiefly by the ♂ antenna, which bears two pairs of slender pectinations on each joint, often the ♂ hindleg, which has a tendency to lose one of the proximal spurs, and the smooth-margined wings, the forewing with double areole. Although the genus is regarded as a primitive one, its reappearance in so remote a locality as Chili is very remarkable. The Chilian species have the 3-spurred ♂ hindtibia and the 2nd subcostal of the forewing arising from the cell.

cauquenensis. **R. cauquenensis** *Btlr.* (= *dentilinea* *Warr.*) (9 a) is the largest species, intermediate in colour between the other two, somewhat more reddish-tinged beneath than above. Possibly a form of the following.

ferruginaria. **R. ferruginaria** *Blanch.* (9 a) is distinguishable by the reddish (or light cinnamon) tone and the weaker markings, only the cell-dots as sharply black as in the other species.

chilenaria. **R. chilenaria** *Blanch.* (= *obscura* *Warr.*) (9 a) much resembles a diminutive *cauquenensis*, but is pale grey, not brownish, and is more densely irrorated with fine dark scales than the other species, though the density of the irroration varies somewhat.

2. Genus: **Zalissolepis** *Warr.*

Perhaps a specialized development of *Dithecodes*, differing in the hindleg, which in the ♂ is spurless, with the tarsus broadened and flattened, in the ♀ 3-spurred; areole single; 2nd radial of hindwing arising much before the middle of the discocellulars. Only one species.

subviolaria. **Z. subviolaria** *Guen.* (9 a). Recognizable by the structure and shape, the strong gloss, the peculiar vinaceous-drab tinge, minute white cell-dots and weak markings. Brazil. A single ♀ from La Oroya, Peru, has a more olive-grey tone and probably represents a separate race.

3. Genus: **Dithecodes** *Warr.*

Palpus short. ♂ antenna with fascicles of cilia. Hindtibia in both sexes with terminal spurs only. Forewing with areole nearly always double, 2nd subcostal, in the New-World species (genus *Neosterrha* *Warr.*), from stalk of 3rd—5th or connate, hindwing rounded or with a single angle at 3rd radial. A widely distributed genus in Asia, Africa and South America.

distracta. **D. distracta** *Walk.* (= *cryptereuthus* *Prout*) (9 a). A very variable species, or perhaps group of species not yet differentiated. Hindwing angulated, but variably in degree. The underside, in the name-typical form, has the forewing predominantly orange-red or rosy, the hindwing pale, sometimes with some reddish suffusion anteriorly. — f. (?) *thetis* *Warr.* has both wings beneath pale greenish. Both forms are widely distributed,

Central America to Peru and again in Brazil, the type locality of the species. WARREN'S type of *thetis* was from Costa Rica.

D. deaurata Warr. (9 b). Smaller than *thetis*, hindwing rounded, with the posterior cell-dot not white-pupilled, forewing with cell-dot smaller, postmedian line punctiform, scarcely denticulate. Ecuador; also known from Colombia, Bolivia and probably Central America and Trinidad. *deaurata*.

D. rufipuncta Warr. Near *distracta* (9 a), rather broader-winged and with hindwing scarcely angled (merely showing a rounded change of direction). Hindleg short, with 1st tarsal joint dilated and with a hair-pencil. Forewing with 2nd subcostal connate with 3rd; celldot large and reddish. Underside closely similar to that of *distracta*. Brazil: Tijuca, 1 ♂. *rufipuncta*.

D. mys Prout (9 b) recalls *Z. subviolaria* (9 a) in its extremely strong gloss and to some degree in its shape, but has the forewing less acute and is grey and devoid of markings, the fringe paler but not yellowish. French Guiana; also from the Amazon. *mys*.

D. dentatilinea Warr. (9 b) is the only brown species, in size and shape near *deaurata*, the lines better developed, both wings with a single cell-ring. Venezuela and extending to Colombia and Ecuador. *dentatilinea*.

4. Genus: **Neonemoria** Warr.

Near *Dithecodes*, of which it might be regarded as a subgenus. Hindtibia of ♂ without spurs, but with a strong hair-pencil; of ♀ 2-spurred, as in *Dithecodes*. Forewing with 2nd subcostal (dividing wall of areole) from the cell. Genitalia of ♂ with some differences from all the *Dithecodes* yet investigated, especially in the two-pointed gnathos and saccus.

N. thalassinata Snell. (= *virescens* Th.-Mieg, *plana* Warr.) (9 b). Recognizable by the glossy whitish green wings, extremely weak markings and broadly reddish costa of forewing beneath, as well as by the structure. Colombia (the type locality), Peru and Bolivia. — **rasa** Warr. is a smaller form from Venezuela, British Guiana and Ceará (Amazon). — **decolor** Warr. (as „*Dithecodes*“ will almost certainly prove to be an aberration of this with the costal region beneath more broadly reddened; most points in the description agree, but I have only seen a few poor specimens of this eastern race. *thalassinata*, *rasa*, *decolor*.

5. Genus: **Tricentra** Warr.

An attractive genus of exclusively Neotropical *Sterrhinae*, rich in species and mostly very homogenous; notwithstanding considerable variety in wingform; Palpus and antenna nearly as in the 3 preceding genera. Hindtibiae, on the other hand, favouring those of *Rhodostrophia*: ♂ with 3 well developed spurs (but see the first two species), ♀ with 4. Areole double, with 2nd subcostal arising from the cell; only the last two species — which will probably have to be removed — with areole simple. The small size, generally bright and variegated colouring and very frequently pure white cell-spots or dots render the genus easy of recognition; but the structure should also be always studied, as otherwise a few gay species of the *Sterrha* group will probably be sought here.

T. spilopera sp. n. (9 b). Hindtibia of ♂ with both the proximal spurs present, very short. The violet-grey wings are marked with slender red lines; termen and fringe yellow, with red terminal dots and conspicuous central red spot on fringe; an indefinite yellow wash between anal angle and cell on forewing only. Forewing beneath largely rosy, hindwing beneath grey, the cell-marks and fringe-spots shown. Taperinha, near Santarem (Dr. H. ZERNY), only the type known. *spilopera*.

T. fumata Warr. (9 b) is distinguished by the predominantly dark purple-grey hindwing and proximal patch of forewing. A pretty aberration has the bright red colour which normally separates the narrow buff border of the hindwing from the dark ground-colour more or less strongly extended. French Guiana. So far as I have examined them, the ♂♂ have always both the proximal spurs present in the hindtibia (genus *Pammeris* Warr.); but they possibly vary (cfr. *albiguttata*). *fumata*.

T. albiguttata Warr. (9 b) differs from *fumata* in the much less dark violet-grey basal areas and the very dark bar which separates these from the variegated (buff and red) distal parts. French Guiana (loc. typ.), Fonteboa and La Oroya (Peru). WARREN attributes to his type ♂ the presence of 4 hindtibial spurs, as in *fumata*, so I suppose the structure varies; most *albiguttata* possess but 3. *albiguttata*.

T. euriopis Dyar, from Panama, is said to differ in having “the white spot on hindwing much larger” than in *albiguttata*, but its size and shape are not given. Two specimens before me from the Maroni River, similar to *fumata* but with the hindwing somewhat intermediate in colour towards that of *albiguttata* and bearing a very large (at least 1 mm in diameter) circular white cell-spot, may belong with it. *euriopis*.

- mimula*. **T. mimula** Warr. (9 c) recalls in its coloration some Old-World *Ptochophyle* and *Chrysocraspeda*. Cell-mark of forewing black, of hindwing very narrow and weak, yellowish. — ab. **albignata** nov. has the cell-mark of the hindwing enlarged, white, shaped as in *bisignata* Warr. (9 c). La Oroya, Rio Inambari, S. E. Peru.
- neomysta*. **T. neomysta** sp. n. (9 c). Considerably smaller (scarcely 16 mm), hindwing rather narrower, proximal spur of hindtibia relatively shorter; darker and much less rosy purple both above and beneath, thorax and abdomen dark-mixed above, the pair of bluish-white cell-dots on each wing set in a black spot. Lower Amazon: Taperinha, near Santarem, August 1927 (Dr. H. ZERNY), 1 ♂.
- aurilimbata*. **T. aurilimbata** Warr. (9 c) differs from *mimula* in its rounder hindwing, deeper rose-colour, double whitish cell-mark of forewing and reduced yellow borders. French Guiana. A faded ♀ in coll. MARTEN belongs to the same or a closely similar species, the cell-mark of the forewing perhaps single or strigiform. Alto da Serra, S. E. Brazil.
- vinosata*. **T. vinosata** Warr. (9 c). Much duller purple, only flushed with red about the pale cell-marks. Strikingly distinct in shape. French Guiana. — **cnephodamas** subsp. nov. Larger (21—24 mm), the projections of the wing-margins not quite so extreme, the terminal line at these points less diffused on to the fringe; the red suffusion in median area generally extended. Jaraguá do Sul (FR. HOFFMANN), type in the Tring Museum.
- flavimarginata*. **T. flavimarginata** Warr., from Paramba, is intermediate in shape and colour between *mimula* and *vinosata*, but nearer in both respects to the latter. Cell-marks punctiform and white, not linear and yellowish. — **ascotista** subsp. nov. is somewhat larger (22—23 mm), the hindwing with the bend at R¹ so slight as to be inappreciable, the forewing with the black irroration not intensified at base of costa and apex, etc. Jaraguá do Sul (FR. HOFFMANN), a pair in Tring Museum.
- angulisigna*. **T. angulisigna** Dogn. (9 c). Coloration nearly as in *quadrigata* (9 c), but with the cell-marks reduced, that of the hindwing narrow and angular. Distributed from French Guiana (the type locality) to Venezuela and Fonteboa. — **pyrbola** subsp. nov. is larger (23 mm), quite agreeing with *bisignata* in size and coloration; the red markings bright, but not very ample on the forewing, much constricted between median and submedian veins, the white cell-marks rather large. Jaraguá do Sul, Santa Catharina (FR. HOFFMANN), 2 ♀♀ in the Tring Museum.
- bisignata*. **T. bisignata** Warr. (9 c), founded on a single ♂ from Tinguri, Carabaya, S. E. Peru, is very distinct in the presence of two large and irregular white marks on the hindwing.
- quadrigata*. **T. quadrigata** Feld. (9 c) is on the whole extremely constant in the size and shape of the white spots (one on each wing). First made known from the Amazons, but apparently much commoner in the Guianas and reaching Venezuela. A record for N. Argentina is more questionable.
- unimacula*. **T. unimacula** Dogn. (9 d). Darker than *quadrigata*, the white cell-mark of the hindwing larger and less angular, that of the forewing greatly reduced, punctiform. French Guiana. Single specimens from Venezuela and S. E. Peru, larger and slightly different in some details, may represent races.
- ignefumosa*. **T. ignefumosa** Warr. (9 d). A small species, rounder-winged than *angulisigna* (9 c), the reddish parts brighter, separated from the purple-grey by a darker bar, the angled mark of the hindwing yellowish and inconspicuous. French and Dutch Guiana.
- debilis*. **T. debilis** Dogn. (9 d). Distal margins more convex, the darkest band standing between the purple and the yellow parts and projecting into the latter about the 1st median; cell-dots whitish, double. From the same localities as *ignefumosa*.
- fulvifera*. **T. fulvifera** Dogn. "16 mm. Rosy grey; forewing with the whole central region from the base nearly to the subterminal line red-brown; an antemedian line, strongly rounded outwards, dotted with black-brown on the veins, farther from the base at inner margin than at costa; 2 yellow cell-dots; subterminal rounded, nearer the distal margin about veins 3, 4, 5, marked by interneural spots in its anterior part; fringe yellow. Hindwing with central region similarly red-brown; antemedian waved; 2 yellow cell-dots; subterminal sinuous, thick anteriorly." St. Laurent du Maroni, 1 ♂.
- consequens*. **T. consequens** Warr. (9 d). The pairs of cell-dots whitish, partly confluent, the orange ground-colour shading into purple-grey costally and apically on forewing and distally on hindwing. Somewhat variable. French Guiana (loc. typ.) and the Amazons, also (in differentiable races?) in S. E. Peru and Bolivia.
- ascantia*. **T. ascantia** Druce (9 d). More mottled than *consequens*, the dark patch outside the cell of forewing well developed; cell-dots confluent on hindwing only. Guatemala.
- ellima*. **T. ellima** Schaus. A relatively large species, with distal margins distinctly bowed in the middle; pre-

dominantly rosy, with an admixture of drab, especially along costal margin of forewing and with characteristic yellow suffusion about the double white cell-dots; fringes yellow. Mexico.

T. auctidisca *Prout*. Rather smaller and shorter-winged than *subplumbea* (9 d), with broader purple-red margins, cell-mark of forewing large and white (transversely oblong), fringe of forewing beneath red in posterior part. Maroni River. *auctidisca*.

T. subplumbea *Bastelb.* (9 d) is named from the deep leaden-grey underside, on which the cell-spots are larger than above, the fringes yellow. Coroico, Bolivia. *subplumbea*.

T. flavimargo *Warr.* (9 d), together with *auctidisca*, *subplumbea* and several species which follow, has the forewing rather strongly rounded and appearing still more so on account of the anterior curve of the dark colour, which leaves the apex as well as the fringe yellow. Cell-mark of forewing tinged with yellow, lunular or slightly angled, that of hindwing consisting of 2 minute white spots. Cananche, Cundinamarca, Colombia. *flavimargo*.

T. gibbimargo *Prout*. Larger and darker than *flavimargo*, with distal margin of forewing still more convex; cell-mark of hindwing a yellow streak. Maroni River. *gibbimargo*.

T. commixta *Warr.* (9 e). A beautiful species, with the variegated rosy and orange-red parts separated from the yellow bordering by a band of olive-grey, which colour also suffuses the bases. Fairly common locally in E. and S. E. Peru; known also from E. Bolivia. *commixta*.

T. cambogiata *Warr.* (9 e). Ground-colour yellow, with very little of the rose-coloured admixture, the grey parts more purplish than those of *commixta* and including a broad, irregular band outside the cell. British Guiana (type), Venezuela, Trinidad and Fonteboa. *cambogiata*.

T. citrinaria *Warr.* (9 e). Similar to *cambogiata* (possibly a form thereof), but with the basal and post-discal grey patches more strongly confluent, the yellow subterminal band on both wings broader, cleaner, more distally placed, etc. S. E. Peru (loc. typ.) and Ecuador. — **grisescens** *Prout*, from Fonteboa, Upper Amazon, has the grey suffusions still stronger, almost suppressing (even on the hindwing) the rosy admixture. Also known from French Guiana. *citrinaria*, *grisescens*.

T. carnaria *H.-Sch.* (= *laciniata* *Warr.*) (9 e) is best recognized by the dentate yellow subterminal and terminal lines on the rosy ground. Surinam (HERRICH-SCHAEFFER) and S. E. Peru (WARREN). *carnaria*.

T. allotmeta *Prout* (9 e). Darker, the outer yellow line finer, less dentate, more proximally placed, especially on the hindwing, where it runs straight across the wing from the 1st radial to the abdominal margin. Carabaya, S. E. Peru. *allotmeta*.

T. flavicurvata *Dogn.* is unknown to me, but according to the description differs chiefly from *allotmeta* in the cell-marks, which are about as in *auctidisca*; the subterminal line of the forewing emits 3 points proximad between the 2nd radial and the fold and the apical region, as well as the fringe, is yellow. Bolivia: Coroico, 1800 m, 1 ♂. *flavicurvata*.

T. flavifigurata *Prout* (9 e). Distinguished by the angled forewing (at and just in front of the 1st median) and by the complex yellow cell-mark of the hindwings. Carabaya, S. E. Peru. *flavifigurata*.

T. devigescens *Prout* (9 e). By the hindwing, this might almost be taken for a melanic form of *carnaria*, but the subterminal line of the forewing is posteriorly farther from the apex and from the 1st median forward is lost in a cartridge-buff apical patch which becomes costally suffused with the ground-colour (upside) or with a dull reddish orange (underside). Surinam (type) and S. E. Peru. *devigescens*.

T. benevisio *Prout* (9 e). Very similar to a small *gavisata* (9 f), but suffused with purple-grey almost throughout, the cell-dots of the forewing reduced and yellowish, the terminal yellow borders very narrow but almost complete, only interrupted about the 1st median and not widening apically. Buenavista, E. Bolivia, 750 m, January—April 1907 (J. STEINBACH), 2 ♂♂ in coll. Tring Museum. *benevisio*.

T. gavisata *Walk.* (9 f). A well-known species, yellow, generally (though not invariably) very heavily suffused with orange-red and with several wavy red, or in part purplish, lines. Cell-marks white, geminate on both wings. Described from the Amazons, but distributed to Costa Rica, French Guiana and Peru, southward to Matto Grosso. *gavisata*.

T. brunneomarginata *Warr.* (9 f). Much paler, the terminal line band-like, brown-grey, the posterior cell-dot of each wing enlarged. French Guiana; also known from Surinam and N. E. Brazil. Possibly a race of the following. *brunneomarginata*.

T. decorata *Warr.* Similar to the preceding but with much additional brown-grey clouding, namely on the forewing about the cell-spots and in a broad longitudinal streak thence to mid-termen, on the hindwing *decorata*.

in a very ample central suffusion between the 1st and the 3rd red line and a slight longitudinal extension about the radials connecting this with the very broad border. Rio Cayapas, N. W. Ecuador, only the type known.

- subnexa.* **T. subnexa** *sp. n.* (9 f). Size of a small *brunneomarginata*, but darker, the white being almost confined to the central spot and some streaks on the veins. Hindwing with distal margin more bent. Dark cloudings on forewing ample. Cell-spots very characteristic, the posterior one on each wing much produced longitudinally, the anterior on the hindwing narrowly connected with it, on the forewing forming a separate dot. Probably near *quadrigata* (9 c) notwithstanding the differently shaped wings. St. Jean de Maroni, French Guiana, the type ♂ in Tring Museum; a rather worn ♂ from La Oroya, S. E. Peru, in the same collection, perhaps differing racially.
- oeno.* **T. oeno** *Druce* (9 f), founded on a ♀ from Jalapa in the SCHAUS collection, is unknown to me, but should be readily recognizable from the figure, which we reproduce. Rather large, much clouded, but with a conspicuous reddish band within the cell. "Underside pale pinkish grey, with the white spots as above, both wings with a faint waved brown submarginal line."
- biguttata.* **T. biguttata** *Warr.* (9 f). Also considerably clouded, considerably smaller than *oeno*, the apex perhaps less produced; characterized by the double cell-spot on each wing. French Guiana.
- irregularis.* **T. irregularis** *sp. n.* (9 f). General aspect of *biguttata*, but in shape approaching *protuberans* — forewing bluntly elbowed at 1st median, thence very oblique; red parts rather brighter than in *biguttata*, dark cloudings less heavy; white spots of forewing more contrasted in size, the anterior being very small, the posterior somewhat produced outward; the corresponding spot of hindwing remains small (about as in *decorata*). Lower Amazon: Taperinha, near Santarem, August 1927 (Dr. H. ZERNY), type ♂. Upper Amazon: Codajas (S. M. KLAGES), a damaged ♂ in Tring Museum.
- apicata.* **T. apicata** *Dogn.* "18 mm. Forewing slightly acuminate, hindwing feebly elbowed at vein 4. Rosy, broadly washed with blackish grey, the forewing basally, costally, apically and hindmarginally, the hindwing on the anterior costal half and before the 2nd line; veins yellow in the red spaces. Forewing with 3, hindwing with 2 irregular white discal spots, the anterior one of the forewing minute, 3 sinuous and dentate lines, partly lost on the dark suffusions." (Adapted from DOGNIN.) Corvico, Bolivia, at 1800 m, 1 ♂.
- protuberans.* **T. protuberans** *Dogn.* "19 and 20 mm. Forewing elbowed on vein 3, the margin strongly oblique from 3 to the inner angle, straight from 4 to the apex; hindwing elbowed at 3 to 4, the margin oblique from 3 to the inner angle, which forms a slight projection. Wings above brick-red with 2 white cell-spots, the markings black-brown, the veins in part tinged with yellow. Forewing with costa broadly brownish, antemedian excurved, twice bent outward, a broad postdiscal shade immediately followed by a postmedian line, and a subterminal, both dentate outward, the subterminal in addition with a large black subcostal dot. Hindwing with the lines similar, the anal angle becoming brownish, the fringe yellow, interrupted with grey at veins 3, 4, 6 and 7. Corvico, Bolivia, 1800 m, 2 ♂♂."
- flavitorната.* **T. flavitorната** *Prout* (9 f) is even more extreme in shape than *protuberans* and further differs in its pale primrose yellow colour and rosy veins and lines, etc. French Guiana: Godebert Maroni, only the type known.
- ocrisia.* **T. ocrisia** *Druce* (9 g), described as "*Acidalia* (?)", is clearly a *Tricentra*, in spite of its shape and simple pattern. The white cell-streak of the forewing, "edged with reddish yellow", does not come out very clearly in the figure. Guatemala: San Gerónimo.
- amibomena.* **T. amibomena** *Prout* (9 g). This species, except in the undivided areole of the forewing, shows a pretty definite relationship with *commixta* (9 d), at least as regards the shape of both wings and of the clear apical mark of the forewing. The coloration, however, is quite distinctive, the postmedian line of the forewing less sinuous and there are numerous other differences. French Guiana (type), Lower Amazon and Bolivia.
- percerocea.* **T. percerocea** *Warr.* (9 g) is rather smaller than *amibomena*, much less clouded, but with a characteristic dark spot outside the cell of the forewing and a blacker mark on the fringe at the 3rd radial and 1st median. French Guiana (type) and S. E. Peru. — **supercerocea** *form. nov.* (? sp.) (9 g) lacks the reddish cloudings, as well as the dark mark on the fringe, but has a cloudy line or shade crossing the hindwing. Para (Rev. A. M. Moss), the unique type ♂ in the Tring Museum.

6. Genus: **Semaeopus** *H.-Sch.*

Palpus short or quite moderate. Antenna of ♂ pectinate or more often ciliate in fascicles, the cilia generally arising from teeth or rudimentary pectinations. Hindtibia of ♂ more or less strongly thickened and shortened, clothed with strong tufts of hair, spurs nearly always wanting (a strong pair present in *inficeta*);

of ♀ with 4 spurs. Build moderately robust. Wing-margins generally smooth, but a few species with divergent shape are included in the genus; pattern generally simpler than in *Trygodes* (p. 90), cell-marks punctiform or orbicular, often ocellated, recalling *Anisodes*. Forewing with areole double, 2nd subcostal arising from the cell or from the stalk of the 3rd—5th. Hindwing with 2nd subcostal not, or not appreciably, stalked with 1st radial.

An extensive genus, showing only minor variation in structure, chiefly in the ♂ antenna and in the point of origin of the 2nd subcostal of the forewing. — Of the early stages we have still no knowledge.

S. inficeta Dogn. (9 h) differs from all other *Semaeopus* in having a pair of terminal spurs on the ♂ hind-tibia. Antenna of ♂ with longish, slender paired fascicles of cilia. Forewing with 2nd subcostal arising from cell. An inconspicuous species, with only the small cell-dots and the wavy postmedian line developed, these markings also indicated on the forewing beneath; terminal line very slight. Loja. *inficeta*.

S. punctigera Dogn. (= *punctifera* Warr.) (9 h) has longer pectinations than typical *Semaeopus*, but does not require the separate genus *Parazeuxis* which WARREN erected for it. Very distinct from the *munda* group in the more strongly punctiform markings and in the ocellated cell-mark of the forewing. Ecuador and E. Peru. *punctigera*.

S. incolorata Warr. (9 g). Much smaller, much more weakly marked, the cell-spot on both wings punctiform. Forewing, as in *punctigera*, with the 2nd subcostal arising from the stalk of the 3rd—5th. Bolivia (type) and E. Peru. *incolorata*.

S. noverca Dogn. is closely related to *trygodata* (9 h) the antennal structure similar, as also the markings of the wings. I should have been inclined to sink *trygodata* to it, but Mr. SCHAUS points out that *noverca* differs in the presence of numerous scattered black scales. Loja, only the type ♂ known. *noverca*.

S. trygodata Warr. (9 h). Thinly scaled and iridescent, the pectinations slight, ending in long fascicles of cilia, the markings diffused, olive-yellowish, not grey. Range as in *incolorata*. *trygodata*.

S. verbena Dogn. (= *subtranslucens* Prout) (9 g) differs from *trygodata* in that the antennal pectinations of the ♂ are long, the cell-mark of the forewing is ocellated, the termen of the hindwing is more strongly dentate. The 2nd subcostal of the forewing, so far as I have observed, is long-stalked with the 3rd—5th; in *trygodata* usually more shortly, but variable. The type of *verbena* was from Loja, that of *subtranslucens* from Sierra del Libane, Colombia. *verbena*.

S. serrilinearia H.-Sch. (= *hircaria* Guen.) (9 h), the type of the genus, has the pectinations well developed, of moderate length, ending in tufts of extremely short cilia. Forewing with 2nd subcostal arising from cell. The ground-colour is less reddish than in *dentilinea* and *ladrilla*, but the irroration and markings themselves are rosy, not grey. Brazil: Rio de Janeiro and Minas Geraes and I think reaching Matto Grosso. *serrilinearia*.

S. castaria Guen. (= *solitaria* Walk., *concinmata* Feld.) (9 h). Structure nearly as in the preceding, the pectinations proximally longer, decreasing in length rather rapidly. Smaller and much paler, the markings greyish, not sharp. The type was from Haiti but the species occurs also on Jamaica and perhaps Cuba. *castaria*.

S. malefidaria Möschl., founded on 1 ♀, would appear, from the description, to be very near *castaria*, but as its careful author merely describes the face as "bräunlich" I cannot unite them; in *castaria* it is dirty whitish, somewhat suffused with red-brown, and has a very conspicuous black-brown bar at its upper extremity. Porto Rico. *malefidaria*.

S. dentilinea Warr. Structure nearly as in the genotype, except that the 3rd joint of the palpus is noticeably less short. Easily known by its colour and the slender grey markings. The type ♀, from Paramba, is unfortunately the only specimen yet known to me from W. Ecuador and may represent a separate race; it is slightly less reddish and with the markings decidedly stronger than the ordinary form. — **carnearia** Warr. (9 i) is the correct name for the last-mentioned, which is common in Carabaya, S. E. Peru (the type from Santo Domingo) but distributed from Costa Rica to E. Bolivia. — ab. **simplex** Warr., founded on a rather small ♂ with the markings obsolescent, is scarcely name-worthy unless the variation should prove to be seasonal, which is unlikely. The type ♂ was taken at Santo Domingo in the dry season, while most of the typical series belonged to the wet season. *dentilinea*. *carnearia*. *simplex*.

S. ladrilla Dogn. (= *directilinea* Schaus) (9 i) differs from *dentilinea* in its deeper ground-colour, straighter median line and white-pupilled cell-spots, that of the hindwing large. Costa Rica to S. E. Peru, Dognin's type from Ecuador. *ladrilla*.

- indignaria*. **S. indignaria** Guen. (= *absconditaria* Walk.) (9 i). Paler than *dentilinea*, the outer line not dentate, much less sinuous than in the two preceding; median line more as in *directilinea*, but generally showing more or less distinct traces of a duplicating shade distally. Much confusion has been caused through GUENÉE'S erroneous type-indication "Brésil?"; the type must have come from Haiti, though I have seen the species also from Cuba. — *filiferata* Walk., from Jamaica, is either a race or perhaps really synonymous; less weakly marked, with small cell-dot and fine postmedian line developed on the underside.
- micropis*. **S. micropis** Hmps. (9 i). Only ♀♀ are known to me, perhaps a small form of *perletaria*, from which otherwise I cannot at present distinguish them, except that the tone is slightly less reddish or yellowish. Bahamas.
- perletaria*. **S. perletaria** Möschl. (= *fuscifrons* Warr.) is similar in colour to *indignaria* (9 i), with which it also agrees in having the cell-dot white-pupilled, at least on the hindwing; markings weaker, the outer line dentate, slightly strengthened on the veins. Porto Rico. — *fuscifrons* Warr., from Cuba, only differs in retaining traces of the markings on the underside. More extensive material may prove it untenable.
- permanata*. **S. permanata** sp. n. (9 k). Also similar to *perletaria*, but readily distinguishable by the more curved median and postmedian and especially by the underside, which has both the cell-dots (here black) and the lines beyond it strongly developed, about as in *oenopodiata* Guen. Guatemala: Cerro Zunil, 4000—5000 feet (CHAMPION), the type ♂ apparently left undetermined by DRUCE; antenna dentate, with fascicles of moderately long cilia. Further specimens from Zapote (Guatemala) and Chiriqui were determined by DRUCE as *Anisodes prunelliaria* and *globaria*!
- exypna*. **S. exypna** Prout (9 k) is perhaps a race or synonym of the following, which I cannot compare side by side. Structure about the same, antenna with very slender, ciliated pectinations, hindtarsus thickened except at extremity, 2nd subcostal of forewing arising from the cell. Pozuzo, only the type ♂ known to me.
- alicia*. **S. alicia** Schaus. Very slightly smaller, the inner and the median line more strongly expressed on the hind-than on the forewing, otherwise the description fits *exypna* almost exactly. Brazil: Tijuca, founded on a single ♀ in the SCHAUS collection.
- perspectaria*. **S. perspectaria** Walk. Pectinations slender, at base and distally rudimentary, throughout surmounted with fascicles of cilia. Easily known by its yellow colour. The type has distinct dark-ringed cell-spots. — *flavida*. ab. **flavida** Warr. (9 k) is a weakly marked form with cell-marks subobsolete. — Venezuela and reaching Panama.
- argocosma*. **S. argocosma** sp. n. (9 k). Similar in structure, but markedly larger and of a bright orange colour, with strikingly large and conspicuous white cell-spots. Underside less bright, the lines faint, tinged with reddish, the cell-spots of the upperside only feebly indicated, but containing on each wing a conspicuous red mark at the discocellulars. Jamaica: Montego Bay, 6 February 1924 (Major GILLET), type ♂ in British Museum.
- concomitans*. **S. concomitans** Warr. 34 mm. According to the description much like a small *indignaria* (9 i) but "pale stone-colour" (excepting the ochreous costal edge) and with the outer line "irregularly crenulate". Cuba: Santiago, founded on 1 ♂, 1 ♀.
- curta*. **S. curta** Warr. Again smaller (30 mm) and "characterized by the short, blunt wings and the red fringes". As in *concomitans*, the median line is followed distally by a dark shade, but the small cell-spots are blackish. Termen of hindwing slightly sinuous posteriorly. Ground-colour pale greyish ochreous, becoming in the distal half deeper, more mouse-colour, with a slight rufous tinge. Superficially more reminiscent of the *Thysanopyga*-group (*nicetaria* Guen., etc.) than the neighbouring species. Cuba, 1 ♀.
- plerta*. **S. plerta** Schaus. Only about 22 mm from tip to tip, more warmly coloured than the neighbouring species, yellowish irrorated with reddish, cell-dot white, red-edged. Characterized by the firm, straight and markedly oblique reddish median line. Jalapa, the ♂ unknown.
- sabuloides*. **S. sabuloides** Schaus. "30 mm" (tip to tip). Forewing with 2nd subcostal from cell or connate. Pale olivaceous grey, thickly darker-irrorated. Median line (or shade) browner, dentate (at least in anterior half), incurved posteriorly; cell-spots small (especially on forewing), black. Jalapa (type) and Guadalajara, the ♂ again unknown.
- pertumna*. **S. pertumna** Schaus. Antennal pectinations short, surmounted with tufts of short cilia. Wings thinly scaled, a little paler and more sharply marked beneath, where the outer line is sometimes — especially in the ♀♀ — broadened in places into a bandlike shade, altogether suggesting a transition towards the simplest forms of *Trygodes*. Commonest in Peru (loc. typ.) and Bolivia, but also known from Colombia and Venezuela.
- viridiplaga*. **S. viridiplaga** Walk. Structurally distinct in having a long and strong hair-pencil on the midtibia of the ♂; the hindtibia is much shortened, also with a hair-pencil. Antenna nearly as in *pertumna*. The

typical form is very easy to recognize by the large, irregularly-shaped green patch on the hindwing. — In ab. *vacuata* Warr. (10 a) this patch is reduced to a very small ring, like that of *pertumna* or smaller. — In ab. *anfractata* Prout the outer line, always slightly dentate in the species, is strongly produced inward between the veins so as to form a remarkable zigzag. Described from Brazil, *viridiplaga* is also rather common at Sapucay, Paraguay, where FOSTER took all 3 forms together; the *vacuata* form has also been taken singly in Colombia and Peru.

S. enodiflexa Prout (= *indignaria auctt.*, nec *Guen.*) (10 a). Superficially very like a large *vacuata* (10 a), the curves of the outer line rather less deep and entirely without dentation, both cell-spots always very small but white-pupilled. Midtibia of ♂ simple, hindtibia more heavily tufted than in *viridiplaga*, the tufts mixed with red, the tarsus entirely aborted. Paraguay (type) and Brazil.

S. ciliata Prout (10 a). Generally a little more tinged with brownish or flesh-colour than *enodiflexa*, otherwise I do not know how to distinguish the ♀; cell-dots on an average smaller. Antenna of the ♂ dentate, with fascicles of long cilia, while that of *enodiflexa* is formed nearly as in *pertumna*. Generally distributed from Panama (the type locality) to Paraguay and S. E. Brazil.

S. rubripuncta Dogn. Similar to *ciliata* (10 a), considerably smaller, the median line of the forewing rather less straight, the curves of the postmedian rather weak, the cell-spot of the hindwing enlarged, outlined in reddish. Argentina, especially Tucuman; the Tring Museum has a specimen from Agua Suja, Minas Geraes.

S. semicaeca Prout (10 a). Much like a browner *ciliata*, the outer line, however, showing the fine denticulations of that of *viridiplaga*. Cell-dots punctiform, that of the forewing blind, that of the hindwing with a minute but distinct white pupil. Calama, Rio Madeira. Also 1 ♀ from Taperinha, near Santarem (ZERNY).

S. anomala Dogn. "38 mm". An almost exact counterpart, though larger, of *errabunda*, but with large red-brown vein-dots on the outer line and again at the base of the fringe and with both cell-dots small and not white. Antenna as in *errabunda*. Popayan, Colombia, 1 ♂. Close to *munda*, except in the small, weak, yellowish cell-mark of hindwing.

S. errabunda Dogn. "30—34 mm. Yellowish testaceous, irrorated with reddish, traversed by two darker lines, irregularly sinuate, nearly parallel and slightly wider apart on the hindwing; forewing in addition with a subbasal. Cell-dots white, more or less surrounded with black or reddish on the forewing, a little larger and well encircled with black on the hind. Underside similar, but the forewing more or less rosy tinted and without the 3rd line; cell-dots transformed into black marks. Antenna with double ciliation." Loja and El Monje, S. Ecuador.

S. munda Walk. somewhat recalls *punctigera* (9 h), but is larger, with fasciculate ♂ antenna, the middle part of the face more reddish, the forewing beneath not suffused with reddish; these are additional distinctions to those noted above. Bogota. — ab. (?) **signifer** Warr. (10 b) only differs in the cell-spot of the hindwing, which, instead of being filled with blackish, forms a ring containing a red mark on the discocellular. E. Bolivia (type), E. Peru, Colombia and N. Venezuela, nowhere common.

S. vinodiscata Dogn., besides being smaller than *munda* (about as *punctigera*), has the forewing relatively a little less elongate costally and the blackish upper part of the face a little more extended. Otherwise I would have sunk it with certainty, the more so as it produces at Muzo an aberration parallel to *munda* ab. *signifer*. E. Colombia: Medina and Muzo.

S. smithi Prout (9 a). Much smaller than *illimitata* (10 b), the grey lines somewhat more diffuse, antemedian somewhat straighter, underside somewhat paler; but perhaps a dwarfed aberration, Colombia.

S. illimitata Warr. (10 b) is a common species from Guatemala, Trinidad, Venezuela and the Guianas to Peru and the Amazons, generally varying little in the ground-colour and the lines but greatly in the size of the cell-spots and the degree of their blackening. In the name-type (from Paramba) they are rather small, white with some grey scales and slenderly encircled with black. — ab. **parvidiscata** nov. has them reduced to white dots, slenderly encircled with black, quite as in *enodiflexa* or *ciliata*. — ab. **albidiscata** Warr. has the white spots large and clear with the usual dark rims. — ab. **nigriscata** Warr. differs from *albidiscata* in having the spots grey or blackish. — **flavicans** Prout, confined to N. Venezuela, seems to be a local race, of a clay-yellow colour, the spots large, as in *albidiscata* or *nigriscata*. The average size of this form seems, moreover, to be decidedly reduced as compared with the others.

S. discosa Dyar. "Dark ochre, the wings finely irrorate with purplish; lines distinct, dull purplish, wavy and denticulate; discal spots large, round, dull purple irrorated with lilaceous, followed each by a purplish cloud that fills in the bend of the median line. Expanse 29 mm. May be a heavily marked variety of *citrina*." Zacualpan, Mexico, 1 ♂.

- citrina*. **S. citrina** Druce (10 b). Much like a yellower form of *illimitata*, possibly a small northern race of the same. Mexico, ? British Honduras.
- concatenans*. **S. concatenans** Dyar. "Dull ochre, irrorate with purplish; forewing with 3 lines, hindwing with 2, pale purplish, wavy and denticulate; discal dots on both wings moderate, rounded, of black and purple scales. Expanse 26 mm. Zacualpan, Mexico. Near *citrina* (10 b), slenderer, less yellow, the lines thicker although not darker."
- tutca*. **S. lutea** Dogn. seems to belong in this vicinity, but the 2nd subcostal of the forewing is just stalked with the 3rd—5th. Hindlegs lost in the unique type. Antenna not quite pectinate. "26 mm." Ochraceous yellow, the lines brownish, on the forewing dentate, with the outer running inwards at vein 2; the weakness of the diffuse median shade compared with the strength of the postmedian creates a superficial impression of a *Spilocraspeda*. Loja.
- euthyoria*. **S. euthyoria** Prout (10 b). Unmistakable on account of the straight, or almost straight central line of the forewing (not oblique like that of *plerta*). Antenna of ♂ merely with short ciliation. Forewing with 2nd subcostal from cell. Cell-dots small, but white-pupilled. Rio Madeira and subsequently obtained by FASSL in E. Colombia.
- pustulata*. **S. pustulata** Warr. (10 b). Best known by the blotches on the subterminal, those at the radials and at the submedian fold large. Structure nearly as in *euthyoria*, the antennal ciliation a little longer. The name-typical race, from S. E. Peru, is of a "deep yellow" colour, almost clear orange. — **aurantirufa** Prout, from Costa Rica and British Honduras, is much more rufous and has the cell-spots reduced in size, the dark dorsal patch of the abdomen weakened. — **vivata** *subsp. nov.* Deeper orange than type, less reddish than *aurantirufa*, the grey shading proximally to the median obsolete. E. Colombia: Upper Rio Negro, 800 m (A. H. FASSL), type in coll. PROUT, others in the British and Tring Museums.
- perpolitaria*. **S. perpolitaria** Möschl. (= *irmata* Oberth.) (10 b). Yellower, the ♂ antenna with long fascicles of cilia, the wing-markings quite distinctive, notably the terminal mark near the apex of the forewing. First known from Surinam, but distributed to Venezuela, Peru, Bolivia and Matto Grosso.
- gracilata*. **S. gracilata** Grossbeck (10 a), on which its author founded a superfluous genus *Dasycosymbia*, scarcely differs at all in structure from the other *Semaeopus* forms in which the ♂ hindleg is the most highly tufted; there is said to be 1 spur on the hindtibia, but this cannot be observed without denuding the leg and in any case is not generic (compare *inficeta*, p. 77, pl. 9 h). Antenna of ♂ with fascicles of moderate cilia. Arizona.
- caecaria*. **S. caecaria** Hbn. (= *punctata* Stoll, nom. praeocc., *fartaria* Guen.) (10 c). A variable species, but generally not difficult to recognize, especially in its typical forms, with their strong maculation in the basal and distal areas. Antenna of ♂ nearly as in *gracilata*; hindtibial tuft in part dark reddish, as in so many S. American *Semaeopus*. — In the weakly marked forms the said maculation is generally indicated in greyish, sometimes scarcely observable; these may be called — ab. **obliterata** *ab. nov.* — ab. **grisea** Warr. has the ground-colour "grey-fawn", not reddish. The species is very generally distributed in Central and South American, as far as Argentina. — **occipitaria** H.-Sch. (= *occipitraria* Möschl.) is perhaps synonymous, or preferably to be regarded as the Cuban race, intermediate towards the following. Also recorded from Porto Rico. — **distinctata** Warr., from Dominica, is generally redder, typically with the dark maculation as weak as in ab. *obliterata*; but perhaps the best character is the stronger development of the dark terminal line in *distinctata*. Similar, of not identical forms are known also from St. Lucia, St. Vincent and Grenada. — ab. **rubella** Warr., also from Dominica, is evidently nothing more than a small, weak-marked form of *distinctata*.
- nossis*. **S. nossis** Prout (10 c). Much like diminutive *caecaria* (10 b), but with the 3rd joint of the palpus shorter. Ground-colour more cinnamon; subterminal dots not macular, postmedian line less sinuous and less strongly denticulate than in *caecaria*. Venezuela.
- subrubra*. **S. subrubra** Kaye (10 c). Very similar to *caecaria* ab. *obliterata* and *nossis*, but with the vertex dark (in both of those species white). Described from Trinidad, known to me also from the Guianas and the Amazon. — **dominicana** Prout. Rather smaller, ground-colour more mixed with orange or rufous, postmedian line less strongly dentate, termen with fine dark dashes instead of dots. Possibly a separate species. Dominica.
- argentipuncta*. **S. argentipuncta** Warr. (10 c). Possibly a pale form of *subrubra*, but it seems constant in Venezuela, while the redder forms are constant throughout the range given above. The name, should the two need to be merged, would have four years' priority over *subrubra*.
- fuscicosta*. **S. fuscicosta** Warr. (= *johannis* Schaus) (10 c). An inconspicuous species, best known by the strongly darkened costal edge. Third joint of the palpus on the ♀ longer than in most *Semaeopus*, antenna with fascicles of cilia suggesting those of a ♂. W. Ecuador (WARREN) and Costa Rica (SCHAUS).

S. computaria Snell. ♂, "25 mm" (28 by our reckoning). Antenna shortly ciliated. Wings greyish red, with both cell-dots small, black, that of the forewing with white pupil; lines fine and weak, placed as in *fuscicosta*, the median perhaps more slender. If SNELLEN has overlooked a dark costal edge, it seems scarcely distinguishable except in the "black" vertex (in *fuscicosta* concolorous with the body). Conejo, Colombia, only the type known.

S. fassli sp. n. (10 c). Forewing rather broad, relatively shorter than most of the species. Ground-colour more purplish than in the preceding, though less so than *decorata*; both cell-dots white-pupilled; postmedian line little sinuous, without teeth or sharp dots on the veins. Underside less purplish, the cell-marks almost obsolete. Orosi, Costa Rica, 1200 m (A. H. FASSL), a ♂ in British Museum.

S. dorsionata Prout (10 d) is best known by the white abdominal spots and by the double cell-dots which form — at least on the hindwing — a black colon-shaped mark. Antennal ciliation moderate or rather short. Goyaz (town), only the type ♂ known.

S. mesoturbata Dyar. "28 mm. Light ochreous brown, shaded and powdered with dark rusty brown except in the outer half of the median space; inner line dark brown, straight except for a bend at right angles on subcosta; discal mark a minute light point in a dark ring; mesial line dark, shaded, dentate on the veins, bent inward on submedian; outer line nearly resolved into dots on the veins, bent outward subcostally; veins slightly darker outwardly. Hindwing the same except for the inner line; mesial shade just beyond the discal mark; space between it and the outer line pale. Cerritos, San Luis Potosi, Mexico, 1 ♂." Described as an *Anisodes*.

S. palliata Warr. 35 mm. Pink and lilac grey, crossed by shades of chocolate or purple-brown; the basal area darkened, on the forewing as far as the first line, on the hindwing more extendedly so posteriorly, including the silvery white cell-spot and obscuring the transverse shades; cell-spot of forewing vertical, silvery white; a fine, dentate submarginal line, with the tips of the teeth darkened. St. Jean de Maroni, 1 ♀, described as a *Thysanopyga*.

S. orbifera Prout (10 d). A rather small species, with the ♂ antennal ciliation moderately short. Recognizable by its colour, white vein-dots postmedially and terminally and especially by the very large white patches which surround the indistinct cell-rings. St. Jean de Maroni, only the type known.

S. decorata Dogn. resembles *orbifera* (10 d) in colour but is not quite so small, has the cell-marks of *dorsionata* (10 d) and is particularly characterized by its large whitish or pale-yellow terminal spots, placed at apex and tornus, the latter the larger, the apical of the hindwing more or less broken. French Guiana (loc. typ.), Peru and Bolivia.

S. didymotoca sp. n. (10 d). A strikingly distinct species, the forewing shaped nearly as in *decorata*, the ground-colour and the subconfluent pairs of subterminal spots recalling *pustulata vivata* (p. 80), while the paired dark cell-spots associate it with the following group. The antemedian of the forewing is also peculiar, its first two spots forming a pair similar to the cell-spots. Matto Grosso (P. GERMAIN), 2 ♂♂ in British Museum, ex coll. OBERTHÜR.

S. semibrunnea Warr. (10 d). Unmistakable through the distribution of the two colours, apparently not variable. French Guiana and, according to DYAR, Panama.

S. fulvescens Warr. (= *erastus* Schaus). Pattern nearly as in *semibrunnea* (10 d), coloration much more uniform, yellow with red-brown irroration and with only some slight greyish clouding to recall the dark parts of that species. French Guiana and spreading to Honduras and to the Amazons.

S. fusilinea Dogn. "25 mm." Reddish ochraceous, the markings brownish; forewing with cell-mark double, nearly united into a line; a fine antemedian, a strong median shade, succeeded distally by an orange line; a "second postmedian" beyond, fine and dentate, but incomplete; subterminal less strongly dentate, with a terminal irroration between the radials and smaller patches at costa and hindmargin; hindwing with a cell-dot, some indistinct lines, and a feeble terminal irroration between the radials. St. Laurent du Maroni, 1 ♂.

S. aurata Warr. 25 mm. (English measurement). Readily distinguished from the other yellow species of the genus by the course of the dark lines and by having a grey cloud on anterior half of forewing from base to postmedian line; first two lines of forewing very oblique outward from median vein hindwards; postmedian and subterminal of both wings strongly zigzag, with long teeth outward on the veins; cell-spots white, narrow. Maroni River, 1 ♂.

- bobaria*. **S. bobaria** Dogn. (10 d) is only definitely known from the type ♂, of which we here reproduce the good figure. It may probably have to supplant the following, but as the antemedian line of the forewing appears to be more oblique anteriorly and the postmedian line less sinuous, it would be premature to merge them. Loja.
- lunifera*. **S. lunifera** Warr. (10 d). The upperside is shown by our figure; beneath, the grey cloudings are wanting, except only those of the distal area of the forewing, which area weakly indicated. Colombia (type) and Bolivia. A race or close relative from S. Brazil awaits better material.
- luridata*. **S. luridata** Warr. is perhaps only a slightly larger form of *lunifera* (10 d), but the apex of the forewing appears somewhat less rounded. Otherwise it differs chiefly in that the dark cloudings are more intense, more tinged with brown, that of the hindwing extended so as to leave free only the basal patch (shaped as in *lunifera*) and a small posterior one like that of *hypoderis* (10 e) or *catamompha* (10 e). Carabaya, S. E. Peru. —
- subrugosa*. **subrugosa** Prout, from Rio Madeira, only differs in having the underside of both wings in the ♂ clothed with coarse reddish scaling.
- caparonensis*. **S. caparonensis** sp. n. (10 d). Possibly a race of *lunifera*, but more probably a good species. Smaller (♂ 22 mm, ♀ 24 mm), paler, costal margin of forewing not darkened excepted its extreme edge, no cloudings on this wing excepting the two terminal spots, of which the anterior is reduced but sharply expressed. Caparo, Trinidad, type ♂ (S. M. KLAGES) and allotype ♀ (F. BIRCH) in the Tring Museum.
- commaculata*. **S. commaculata** Warr. (10 e). Considerably larger than *luridata*, ground-colour a little paler, dark parts at least as strong, slightly more reddish, their distribution quite different — particularly in the development of a broad central band on the forewing; hindwing with pale base much reduced, but with some ill-defined apical maculation. British Guiana (loc. typ.) to French Guiana and to E. Bolivia and Matto Grosso.
- potens*. **S. potens** sp. n. (10 e). ♂ generally larger than *commaculata* (34—38 mm), ground-colour paler, the terminal patches behind the 3rd radial particularly clear and well-developed, the dark markings somewhat less reddish, more chocolate. Underside much more weakly marked than in *commaculata*, hindwing clothed nearly throughout with specialised scaling, the median and part of its first branch with a strong fringe of appressed hair, directed forward (in the cell reaching the cell-fold), hindmargin also with a fringed fold beneath. ♀ less large, well marked beneath, above with the pale area beyond the middle interrupted — altogether very like *commaculata* except in colour. Taperinba, near Santarem, 8 ♂♂, 2 ♀♀ (Dr. H. ZERNY), type in Museum Wien.
- hypoderis*. **S. hypoderis** Prout (10 e). Nearest to *commaculata*, but with a second (subterminal) band developed on the forewing, separated from the ground-colour by an elegant row of white spots; apex of hindwing without pale maculation. S. E. and E. Peru. A small, not very warmly coloured ♂ from São Paulo (Museum Wien) may represent a race.
- duplicata*. **S. duplicata** Warr. (10 e). Forewing broader, without definite bands, no apical spot of the ground-colour, median line double, well beyond the colon-shaped cell-mark; hindwing with the pale patches larger than in *hypoderis*. Guadalite, Cundinamarca, only the type ♀ known, with antennal ciliation as long as diameter of shaft.
- tetrasticta*. **S. tetrasticta** sp. n. (10 e). Probably nearer to *plumbeostrotata* (10 f) than to *duplicata* (10 e), approximating to the latter in coloration; as the cell-marks consist of conspicuous pairs of black dots I place it here. Postmedian line of forewing only faintly duplicated; apical patch very characteristic, large, grey, with curved proximal edge and row of brown spots. S. E. Brasil: Alto de Serra, 800 m, 3 March 1913 (E. D. JONES), only the type known.
- peplumaria*. **S. peplumaria** Schaus (10 f). Exceptional in shape, the hindwing being irregularly produced in the middle; further characterized by the great extent of the dark cloudings. Founded on a ♀ from Sixola, Costa Rica; a ♂ from Honduras agrees essentially with it.
- catamompha*. **S. catamompha** Prout (10 e). Much smaller than *commaculata* (10 e), paler, the antemedian line even more strongly bent than in *duplicata* (10 e), the principal dark shades present but ill-defined; cell-mark of each wing narrow, scarcely expressed except by the sharply black dot at each end. Buenavista, E. Bolivia. —
- isotherma*. **isotherma** subsp. nov. is much more suffused with ochreous, the dark parts (unless, perhaps, the subapical cloudings of the forewing, which are somewhat broadened) less contrasting; pale terminal patch of hindwing inconspicuous, but of equal width from hindmargin to 3rd radial. Orange Walk, British Honduras, type ♂ in Tring Museum. As the hindwing is appreciably more angled at 3rd radial (though only bluntly), this may be a separate species.
- neximargo*. **S. neximargo** Warr. (10 f). More strongly dark-suffused than any of the preceding, the only noticeably pale parts being the subbasal band and terminal patches of the forewing and a few whitish spots, of which the subterminal one in cellule 3 is conspicuous. Both wings bluntly elbowed in the middle. E. Peru (type) and E. Bolivia.

S. mira Prout (10 f). Brighter red than any other *Semaepopus*, costal edge of forewing blacker. Remarkable for the ♂ structure: hindwing with cell-fold very strong, almost vein-like, 2nd radial very weak, appearing as an anterior branch of the radial fold. Huancabamba, Cerro de Pasco only, the type known. *mira.*

S. tropaea *sp. n.* Near *mira* (10 f), sharing with it the atrophy of the 2nd radial of the hindwing. Hindleg still more aborted, with the tufts rather strongly reddish. Hindwing beneath clothed, from base to end of cell, with specialised coarse reddish scaling, proximally in part hair-like. Upperside with the red coloration not quite so bright as in *mira*, the 1st line dark grey, not red, the median excurved almost as in *lunifera* (10 d), the fine yellow edging of the postmedian wanting; hindwing with only one black cell-dot (the anterior). Hindwing beneath with the median line obsolete (in *mira* distinct). Taperinha, near Santarem, 1—10 July 1927 (Dr. H. ZERNY), 2 ♂♂, type in Museum Wien. *tropaea.*

S. exquisitata Möschl. (10 f). Rather short-winged, the grey median area very broad, the paler distal parts small but bright, subterminal, not terminal. Hindwing beneath in ♂ with coarse reddish scaling at base, together with a small hair-tuft curved outwards and hindwards over base of cell. Described from Surinam, but reaches Panama and the Lower Amazon. *exquisitata.*

S. plumbeostrata Prout (10 f). Colours nearly as in *exquisitata*, their distribution very different, wings somewhat less shortened. ♂ hindwing beneath without the basal specialisations. Widely distributed, Trinidad and Venezuela to French Guiana, the Amazons, E. Peru, Bolivia and Motto Grosso, the type from Surinam. *plumbeostrata.*

S. geminilinea Prout (10 f). Considerably smaller than *plumbeostrata*, rather less brightly coloured, the hindwing similar, the forewing marked more nearly as in the *mitranaria* sub-group, but with the median line double throughout. Rio Madeira (loc. typ.), Lower Amazon and E. Bolivia. *geminilinea.*

S. syssema *sp. n.* (10 f). Near the two preceding, especially to *geminilinea*. Hindwing with a broad distal area throughout concolorous with the forewing. Forewing with antemedian line more direct, central group of lines more complicated even than in *geminilinea*, apical patch entirely of the ground-colour. Muzo, Colombia, 400—800 m (A. H. FASSL), 1 ♂ in coll. British Museum. *syssema.*

S. mitranaria Walk. (10 g). This species and the two following have scarcely any clouding on the forewing, but the thick subapical line (from costa to termen just behind the 3rd radial), which begins to appear in *plumbeostrata* (10 f), becomes a very pronounced feature. *mitranaria* is somewhat variable, but readily known by its straw-yellow forewing, sharply contrasting hindwing with unusually large cell-mark, etc. "Brazil" (Amazon?), also known to me from Cayenne and S. E. Peru. *mitranaria.*

S. simplicilinea Prout (10 g). Colouring of *geminilinea*, or with the ochreous parts almost as reddish as in *plumbeostrata*. Distinguishable from the former by its single median line, from the latter by its smaller size and much more simply marked forewing. E. Bolivia (type) and E. Peru. *simplicilinea.*

S. scriptilinea Schaus (10 g). Nearest to *mitranaria*, the lines of the forewing not so extremely oblique anteriorly, the hindwing with much less sharp contrasts, less large cell-spot, etc. Costa Rica (type); forms (?) in Venezuela and on the Lower Amazon. *scriptilinea.*

S. purpureoplaga Prout (10 g). Very distinct in the strongly rounded costa of forewing and little rounded termen of hindwing. The olivaceous upperside and red underside recall *Dithecodes*, but on account of the extremely aborted hindtarsus of the ♂ it is better referred here; the hindtibia is rather long, with hair-pencil. Only known from the Amazon. *purpureoplaga.*

S. prasinotribes *sp. n.* (10 f). Close to *purpureoplaga*, including the structure, red underside and bright red face. A little smaller, the shape slightly less extreme, the cell-marks punctiform; both wings above deep vinaceous-grey, with only a band between median and postmedian greenish; median somewhat less sinuous than in *purpureoplaga*. Taperinha, near Santarem, 21—31 July 1927 (Dr. H. ZERNY), type in Museum Wien. *prasinotribes.*

S. pallida Warr. (10 g) is still more like a *Dithecodes* (p. 72), but the ♀ has 4 well-developed spurs. Underside red. As only the type is known ("Amazon, BATES") it is by no means impossible that it may prove to be the ♀ to *incurvaria* Guen (10 h). *pallida.*

S. discors Prout (10 g). Very similar to the preceding, but with the postmedian line of the forewing more distally placed, more sinuous and denticulate, the median line likewise as a rule somewhat further from the cell-dot. As the ♂ has not the wing-specialisation of *incurvaria*, this is certainly a separate species though nearly related. The type is said to come from Bogota, but as the rest of the material known to me is from French Guiana and the Amazon it is permissible to suspect an error in labelling. *discors.*

S. incurvaria Guen. (10 g). Remarkable for the distorted border of the hindwing and its dull rosy fringes; also for the clothing of this wing beneath with dense hairs. As in the allies, the underside is wholly red. "Brazil" (? Amazon). *incurvaria.*

- olivaceonotata*. **S. olivaceonotata** Warr. (10 h). Here begins a group of species with the lines nearly always pale or pale-edged, the median shade rarely present. WARREN erected for them a genus *Dichromatopodia*, but the strong, bicoloured tufts of the ♂ hindleg are by no means confined to this section. *olivaceonotata* is a pretty species, with its broad lines and pale-encircled cell-marks. Venezuela (loc. typ.), Amazons and S. E. Peru.
- paulena*. **S. paulena** Schaus. Similar to *olivaceonotata* (10 h), possibly a race. Somewhat less bright, the forewing with some dark clouding in proximal and distal areas, especially at anal angle. S. E. Brazil (type) and Paraguay.
- deflexa*. **S. deflexa** Warr. and *canidiscata* Warr. almost certainly constitute a single species, recognizable by the dark ground-colour and the strong anterior curve of the postmedian line of the forewing. Unfortunately most of the material before me (including WARREN'S type, a small ♀ from Palma Sola, Venezuela) is in poor condition and I can point to no reliable distinction, though the postmedian line of the hindwing also is perhaps more strongly curved in form *deflexa*, especially in ab. *lienharti*. — ab. (? subsp.) **lienharti** nov. has, in addition to the usual pale outer spots, a conspicuous one at the anal angle of the hindwing. Honduras: La Cumbre (J. LIENHART), type ♂ in Tring Museum; Guatemala. A poor ♀ from Guerrero, Mexico, in the British Museum, may belong with them, but at Muzo, Colombia, it has been taken together with a very different form, *canidiscata*, in which the pale spots are scarcely indicated. — **canidiscata** Warr. (= *griseomaculata* Dogn.) (10 h) is the common form, still darker than type *deflexa*, the pale terminal spots consequently very conspicuous. Paraguay (type), Argentina, S. and S. E. Brazil, scarcely distinguishable forms also from Bolivia to Colombia (? Panama) and the Guiana-Amazon subregion.
- naltona*. **S. naltona** Schaus. Probably another ab. of the preceding, pale reddish brown, the first line consisting only of scattered black scales, the postmedian broadly shaded on both sides with black scales. Aroa, Venezuela, 1 ♀; one from Panama seems intermediate between this and typical *deflexa*.
- offlexa*. **S. offlexa** Prout (10 h). Larger, the hindwing more bent in the middle, cell-marks shorter, no pale spots in distal area. Calama, Rio Madeira, only the type ♂ known.
- concomitata*. **S. concomitata** Prout (10 h) (= *Dichromatopodia concomitans* Warr., nom. praecoc.). Forewing with termen more bent than in the neighbouring species; the brown ground-colour scarcely tinged with purple or red; the pale cell-marks slight, little elongate, that of the forewing finely black-bordered, that of the hindwing set in a black spot. Tucuman. Smaller forms (racial?) have been found in Bolivia and Matto Grosso.
- oaxacana*. **S. oaxacana** Schaus is perhaps a form of *osteria* (10 h). "violaceous" brown, the median shade "slight", the cell-marks presumably obsolete (not mentioned in the description). Oaxaca, Mexico.
- distans*. **S. distans** Warr. (10 h) is probably merely a race, or even the normal form, of *osteria*, a little more variegated, the cell-dot of forewing often with heavier dark margins; median shade often strong and thick, but somewhat variable. N. Colombia (the type), Venezuela and Trinidad; a somewhat larger form from S. E. Peru.
- osteria*. **S. osteria** Druce (10 h), founded on 2 ♀♀ from Presidio de Mazatlan, Mexico, has the median line strong, but not broad, the cell-dot very slenderly dark-ringed.
- masinissa*. **S. masinissa** Schaus (10 i). Closely like a much-overgrown *distans* with rather heavy dark cloudings, but with the ground-colour redder. Costa Rica. Specimens from the Chanchamayo district, E. Peru, do not seem to differ.
- todillaria*. **S. todillaria** Möschl. (10 i) seems to be somewhat variable, as the type had the cell-mark of the forewing "indistinct, dark", not merely dark-edged, and that of the hindwing undeveloped. The ♀ which we figure is from the type locality (Paramaribo) and shows that the species combines nearly the shape of *concomitata* with the little-bent lines of the *distans* group; median area reddish, distal appreciably darker. Venezuela and Surinam, only ♀♀ before me. — **rufimedia** Warr. is almost certainly merely the ♂ to *todillaria*; I had confidently sunk it, but I find that a careful drawing by WARREN of his type shows the distal margin of the forewing not bent; this distinction, however, may prove to be sexual. French Guiana, founded on a fairly large ♂ ("24 mm").
- ascia*. **S. ascia** Prout (10 h). Smaller and paler, cell-mark of forewing less elongate; line of hindwing more approaching the anal angle posteriorly; distal areas not or scarcely dark-shaded. Termen of forewing in neither sex elbowed. Ciudad Bolivar, Venezuela, the type series. Also known from Surinam and Pernambuco and (a separable race?) in Argentina and Paraguay.
- decalvaria*. **S. decalvaria** Möschl. (= *rubella* Warr.) (10 i). Perhaps an island form of the preceding; less small, more reddish, the central area of the forewing broader, the median shade indicated, though weak. ♀ larger than ♂. Jamaica.

S. callichroa *sp. n.* (10 i). Very near *decalvaria*, possibly a remarkable form thereof, as WARREN assumed. Very slightly surpasses in size the ♀ of *decalvaria* but differs chiefly in having the postmedian line straight both on the forewing anteriorly and on the hindwing, and in the very characteristic coloration in which the underside participates: cell-dot of forewing more strongly white above, obsolescent beneath. Newcastle, Jamaica, 2 ♀♀ in Tring Museum.

S. zova *Schaus*. Allied to *sigillata* (10 i), but larger. "26 mm. Reddish brown. An indistinct darker median shade; lines narrow, paler; inner line angled at costa, then straight; outer line parallel to outer margin; discal spots black, containing some grey scales on forewing. Hindwing with only the outer line. Underside reddish, the hindwing somewhat yellow, small discal black spots." Orizaba, Mexico.

S. sigillata *Walk.* (10 i) is only known to me from WALKER'S type, a ♀ from Santarem, not in very fresh condition. Postmedian line almost as straight as in *miniata*; very distinct from that species in its considerably smaller size, irregular and grey-edged cell-marks and the dark bordering of both the lines.

S. preptocycla *Prout* (10 i) is characterized by the large black, white-pupilled cell-spots of the upperside, otherwise similar to the pale forms of *miniata* or to large *sigillata*. Underside paler than upper, the cell-spots much smaller, but still pale-pupilled, the postmedian line indicated but weak. Described from Peru, but has occurred singly in N. W. Venezuela and on the Amazons.

S. micipsa *Schaus* (10 i). Very similar to *miniata* (10 k) but with small black, grey-mixed cell-spots instead of the white streaks; veins slightly yellowish; a slightly darker brown line edging the postmedian line proximally. Juan Vinas, Costa Rica.

S. hoffmannsi *Prout* (10 i). Wings slightly broader than in most of the species, the lines of the forewing more nearly parallel; cell-spots very small and weak, on the feebly-marked underside almost obsolete. Calama, Rio Madeira (type) and near Santarem.

S. cervina *Warr.* 25 mm. Reddish fawn-colour, the pale lines rather strongly curved or bent near costa, edged on their approximated sides (i. e., in the median area) with fine dark olive-grey lines; cell-marks about as in *miniata*. The type ♂ is from Aroa, Venezuela; I have before me a couple of smaller ♀♀ in poor condition, one from Valencia, Venezuela, the other from N. W. Ecuador, which may belong here but have the lines less curved (intermediate towards *sigillata*), the cell-mark of the forewing more angular.

S. purpurea *Warr.* Extremely similar to the dark purplish forms of *miniata*, the forewing perhaps a trifle broader, with the lines thickening somewhat at costa, the postmedian bluntly bent at 1st radial so as to reach costal margin perpendicularly or extremely slightly oblique inward. St. Jean de Maroni (type) and near Santarem; ? E. Peru. — ab. *retributa nov.* Less dark, less purplish, particularly in the median area, assumes almost the clear red-brown colour of typical *miniata*. Taperinha, near Santarem (ZERNY), 3 ♂♂, taken with typical *purpurea*.

S. miniata *Druce* (10 k). Variable in depth of colour from reddish brown to darker and more purplish brown, but generally recognizable by the elongate white cell-mark of the forewing and the straight, or nearly straight postmedian line. Widely distributed, Panama (the type locality) and eastward to French Guiana, southward to N. Argentina and S. E. Brazil. Southern specimens are generally small, often with the postmedian somewhat curved anteriorly, but the variation is not yet sufficiently understood to justify the naming of the forms.

S. calavera *Dogn.* (10 k). Larger and more vividly coloured than the reddish forms of *miniata*, the principal veins slenderly yellow, the cell-streak of the forewing elongate, that of the hindwing also tending to assume a similar form; antemedian line less sharply angled close to costa. Only known from Colombia, Ecuador (the type locality) and Peru.

S. tergilinea *Prout* (10 k). Much paler than *miniata*, the cell-streak of the hindwing as long as that of the forewing. A pale dorsal line on the abdomen is quite distinctive. N. Venezuela (loc. typ.) and E. Bolivia.

S. hepaticata *Warr.* (10 k). Very distinct in the strong dark lines — not merely dark-edged as in *cervina*, where moreover they are curved and the cell-marks elongated. The postmedian is also developed on the underside. Cundinamarca (the type), British Guiana and Rio Madeira.

S. orbona *Schaus* (10 k) differs from *hepaticata* in its coloration, the more oblique and more composite postmedian line, etc.; underside with a dull rosy tinge. Tuis, Costa Rica, 1 ♀.

S. fuscidiscaria *Warr.* (10 k) was founded on a series of ♀♀ from Santos (type) and Petropolis and this sex, which is generally easy to recognize by the fuscous shading which surrounds the cell-spots, is also fairly common about São Paulo. The vertex, as in *subrubra* and *argentispila*, is at least as dark as the wings, but

- their smaller cell-dots, less dark fringes, etc., readily separate them from *fuscidiscaria*. The only *S.* Brazilian ♂ before me is from Santa Catharina and is a little smaller and weakly marked, recalling ab. *emaculata*. —
- crassidiscaria*. ***crassidiscaria* subsp. nov.** (11 a) has the cell-mark of the hindwing in the type-form still larger, but the more reliable distinctions probably are the reduction of dark irroration on the wings and their redder suffusion. Matto Grosso (GERMAIN), 7 ♂♂ in British Museum, ex coll. OBERTHÜR; single ♀♀ from E. Bolivia and St. Jean de Maroni are also known to me. — ab. ***emaculata* ab. nov.** has the cell-rings very small and inconspicuous. Matto Grosso, 2 ♂♂, collected with the type series.
- vestita*. ***S. vestita* Prout** (11 a). Larger than *fuscidiscaria* (10 k), fringe not darkened, median and postmedian lines of forewing more parallel, the former being equally sinuous with the latter, circumscription of the white cell-dots rarely enlarged. Structurally distinguishable in that the 2nd subcostal of the forewing is stalked with the 3rd—5th (in *fuscidiscaria* from cell). The name-typical form, from Venezuela, is similar in coloration to *fuscidiscaria*. — ***asymphora* Prout**, from S. E. Peru, is somewhat larger, less ochreous (more fawn-colour), without noticeable dark cloudings. — ab. (?) ***punctulifera* Prout**, also found occasionally in S. E. and E. Peru, is a doubtful form, possibly a distinct species, with the coloration somewhat intermediate, the postmedian line with the lunules shallow, very indistinct, the teeth, on the other hand, tipped with black dots. Antennal shaft in ♂ perhaps slightly thicker and with the joints more projecting.
- maculimargata*. ***S. maculimargo* Dyar** (11 a) is rather striking on account of the peculiar maculation of the distal area. Mexico City.
- ella*. ***S. ella* Hulst** (11 a). Easily known by its clear yellow ground-colour and macular markings. Underside in places suffused with purple-reddish. HULST, unacquainted with the Neotropical fauna, erected for it a new genus *Charommataea*. Described from Central Texas, but extending to Arizona. — ***ellatina* Hulst**, described from San Antonio, S. Texas, is more reddish-buff, the lines more distinct, the underside redder.
- dudisca*. ***S. dudisca* Schaus**. Whitish, with very dense olive-grey and brown irroration; markings similar to those of *ellatina*, the principal (or only?) maculation of the subterminal area placed between the radials of the forewing. Underside reddish. Mexico, the type from Orizaba.
- mizteca*. ***S. mizteca* Schaus**. "Light brown. Forewing: inner line fine, dark; median shade very broad, dark brown, inwardly reddish brown; discal spot blackish, with paler centre; outer line very fine, wavy, lunular; fringe brown at base, outwardly dark grey. Hindwing: median line and discal spot as on forewing, outer line almost imperceptible. Underside reddish brown, with slight median shade and blackish discal blotches. Expanse 24 mm." Oaxaca, Mexico.
- florera*. ***S. florera* Dogn.** (11 a). The only *Scmacopus* with a really band-like postmedian, recalling a *Rhodostrophia*. Loja.
- rubida*. ***S. rubida* Warr.** (11 b). Only WARREN'S type, a ♂ from Cucuta, Venezuela, here figured, is yet known to me. The first of a group of rather bright orange forms with the 2nd subcostal of the forewing stalked. Underside paler, especially on the hindwing. — ***orbistigma* Prout** (11 a) is a large race or relative, with the cell-mark of the forewing enlarged into a black ring, the median line of both wings strongly blackened at hindmargin. S. Ecuador, E. Peru and Bolivia.
- discopunctaria*. ***S. discopunctaria* H.-Sch.** (= *roseigera* Walk.) (11 b). Distinct in the black-ringed, black-pupilled white cell-spot of each wing, as well as in the course of the lines. Brazil, apparently not variable.
- trophinus*. ***S. trophinus* Schaus** (11 b). Readily distinguishable from both forms of *rubida* (11 a) by the long, narrow cell-mark of the forewing, the black dorsal blotch of the abdomen and other details. Described from Costa Rica, but re-appears in E. Peru.
- ephippiata*. ***S. ephippiata* Dogn.** Size of *trophinus*, perhaps synonymous, but differing, according to the description, in the absence of the abdominal blotch and in having both wings in part washed with reddish, the forewing in the submedian area from the first line to the termen and between the radials, the hindwing in its apical half; cell-streaks blackish, with some reddish shading. Lino, Panama.
- tertullus*. ***S. tertullus* Schaus** (11 b). Palpus, head, a dorsal line on abdomen, costa of forewing and the veins in part infuscated; cell-mark of forewing linear, of hindwing small, white, dark-edged. "Wings below roseate yellow, the lines faintly indicated." Juan Vinas, Costa Rica, 1 ♀.
- rubellula*. ***S. rubellula* Th.-Mieg** is, according to the description, closely like the most "brick-red" forms of *justata* (11 b) but with the cell-spots obsolete on the upper side, though showing in grey on the somewhat paler underside. Cayenne, 1 ♀, expanding 23 mm from tip to tip.

S. justata Walk. (= tepidata Walk.) (11 b). Somewhat variable but unmistakable, since it is the only *justata*. small Brazilian *Semacopus* with the bright ochreous or reddish ground-colour. Cell-rings small, on the upper surface white-centred; the terminal cloudings between the radials and at anal angle (mentioned in the description of *rubellula*) are often quite strong but sometimes slight. Not rare, especially in the Rio district.

S. ochratipennis Warr. (= citrina part., Druce) (11 b). Paler, more clay-yellowish than *justata*, the forewing relatively somewhat more elongate, the cell-marks less clearly white-pupilled; terminal line slender and not very dark, but only quite slightly interrupted at the veins. Venezuela; also (wrongly determined by DRUCE as *citrina*) Tabasco and Costa Rica. Possibly a form of *ambagifera*.

S. vincentii sp. n. (11 b). Intermediate in shape and colour between *justata* and *ochratipennis*, perhaps nearer to the former but with the irroration weaker and less reddish. Cell-spots somewhat larger and more oval; lines slender, but well developed, median line more deeply incurved behind the 3rd radial than in *justata*; subterminal shades weak or wanting. Bequia I., St. Vincent, August-September 1903 (DUFFUS), ♂ type and 3 ♀♀ in Tring Museum; the ♂ is 1 mm smaller than the ♀♀ and has the cell-spot of the hindwing somewhat more blackened. — **luciae** subsp. nov., from Santa Lucia is closely similar, but less bright, generally more or less suffused with grey in the median area; on an average larger (expanse 27—31 mm), but more extensive material is needed to confirm the distinctions. 1 ♂. 3 ♀♀, the type a large ♀ in British Museum.

S. ambagifera Warr. (11 b). Variable, or possibly embracing 2 or 3 species whereof the distinctive characters have not yet been definitely worked out. Somewhat less ochreous than *ochratipennis*, the distal margin of the hindwing appreciably more bent at the 1st radial. A characteristic marking is the dark spot behind the base of the 2nd median, generally more conspicuous on the hind- than on the forewing; in the ♀♀, however, which are more commonly irrorate throughout than the ♂♂, or at least have a band-like shade proximal to the postmedian, this spot is often partly obliterated. The name-type, from Cucuta (Venezuela), has the antemedian line definitely incurved in the middle, the subterminal curved rather than angled at the 1st radial. Similar, though somewhat more ochreous forms occur occasionally in Brazil (Rio Janeiro, etc.); specimens from Pernambuco (Recife) are still nearer to the type in colour, but have the subterminal line more angulated, the curvature of the antemedian somewhat variable. — **eublemmaria** Oberth. (11 b), from Bahia, is probably a mere aberration, with somewhat more rounded hindwing and slightly stronger-marked underside; a few examples which I have seen from Bahia are almost indistinguishable from the Pernambuco, though one shows a strengthened cell-ring on the hindwing much as in OBERTHÜR'S figure. — **consobrinata** Warr. (11 c) was founded on a small form from Ciudad Bolivar, and was considered by its author to be a separate species, the antemedian line not incurved, the subterminal somewhat angular anteriorly, the hindwing more bent than in *ambagifera*. Intermediates, however, seem to occur, even in Venezuela (Valencia), but I provisionally refer to f. *consobrinata* all the forms with the straight antemedian, and give as its known range: Venezuela, Bolivia, Paraguay and Brazil.

S. bimacula Warr. (11 c) is not likely to be mistaken for any other *Semacopus*; the colour, the strong darkening of the costal margin of the forewing and of the terminal spots are quite characteristic, as also the more proximally placed 2nd line and the very small or obsolescent cell-dot of the hindwing. Very general from Central America, Trinidad and the Guianas to Bolivia and S. Brazil, the type from Rio Demerara.

S. redundata Prout (11 c), the only near relative of *bimacula*, is generally somewhat larger and is of a much duller brown, with thickened median shade of forewing and sharper (though equally small) cell-dot of hindwing. The genitalia show very considerable differences (see Nov. Zool., Vol. 25, p. 85). Carabaya (loc. typ.) and (in a smaller form, ? race) N. W. Venezuela.

S. böttgeri Warr. (11 c). Coloration nearly as in *redundata*, shape different, terminal patches of forewing larger, often connected together and with the median shade by dark clouding, that at anal angle of hindwing wanting. E. Peru, chiefly from Huancabamba, Cerro de Pasco. ♀ unknown; its discovery may well prove *böttgeri* to be a *Lipotaxia*.

S. clotho sp. n. (11 c). Possibly a race of *böttgeri* but much smaller (22—23 mm), the hindwing slightly shorter costally and longer hindmarginally, the cloud of forewing darker, terminal dot in cellule 7 and all the fringe-dots stronger, etc. Taperinha, near Santarem (ZERNY), type ♂ in Museum Wien; St. Jean de Maroni, a ♂ in Tring Museum. — **watkinsi** subsp. nov. is a trifle less small (24 and 25 mm); appearance browner, shape of hindwing perhaps more approaching that of *böttgeri*, cloudings of forewing variable. S. Peru: Chaquimayo (loc. typ.) and Yahuar Mayo, several ♂♂ collected by H. C. WATKINS, the type in my collection.

S. marginata Schaus. 25—29 mm. Wings yellow in the ♂, roseate in the ♀. irrorated with a few black and white scales. Forewing: basal half of costa violaceous; lines fine, wavy, brownish; outer margin from inner angle to above vein 5 broadly violaceous; fringe red. Hindwing: median and outer lines as on forewing; extreme margin and fringe violaceous. Mexico.

- nisa*. **S. nisa** Druce (11 c). A beautiful species when fresh, but the characteristic green band easily fades to yellow; 2nd line on both wings almost, or altogether, interrupted between the radials, where the green band makes a strong projection outward. Described from Honduras and occurring in Panama, but chiefly known from Venezuela and French Guiana across the Amazon region to E. Peru, Bolivia, Matto Grosso and Paraguay.
- varia*. **S. varia** Warr. (11 c). Hindwing very slightly less prominent in middle. Colouring often warmer, distal area (especially beneath) more clouded; 2nd line not interrupted, green band not so produced outward, dentate postmedian line of forewing strongly incurved between the radials (particularly noticeable on underside). Guianas, Para, Maranhao and Bolivia, the type from Rio Demerara.
- subtineta*. **S. subtineta** Warr. (= *subfuscata* Warr.) (11 d). Distinct from both the preceding in the much duller, grey-green band, which, on the hindwing, makes its projection in cellule 6, not cellule 5; cloudings of distal area strong, both above and beneath; cell-mark of hindwing small. Both WARREN's types came from Bolivia, but the range includes Colombia, Venezuela, the Amazons and Paraguay.
- scripturata*. **S. scripturata** Warr. (11 d). More thinly scaled and subiridescent than most *Semaeopus*, somewhat recalling *Trygodes*. French Guiana (type) and the Amazons.
- maleformata*. **S. maleformata** Prout (11 d). Closely related to *scripturata* but distinguishable at a glance by the distorted hindwing of the ♂, which bears on its underside a fringe of long hair directed backward from the subcostal vein. Very widely distributed but only yet known from Uruguay (the type), the Lower Amazon and Colombia.
- vizaria*. **S. vizaria** Schaus (11 d). A very distinct species, though with some general resemblance to a small *scripturata*. Not iridescent, the hindwing rounded. The particularly large, blackish-bordered cell-spot and the geminate outer line may be pointed out as characteristic. S. E. Brazil.
- perfusaria*. **S. perfusaria** Walk. (♂ = *atridiscata* Warr.) (11 d). ♂ antenna with ciliation almost even (not conspicuously fasciculate), hindleg (as also in *perstrigata*) with a long pencil from femoro-tibial joint and shortened tarsus; cell-marks black-ringed, that of hindwing partly filled-in with black. ♀ with stronger oblique shading, continued as a central band on hindwing, the cell-spot of this wing less strongly black-mixed. Venezuela (the type), Bahia, Matto Grosso and Bolivia, not common.
- perstrigata*. **S. perstrigata** Warr. (11 d) was made the type of a separate genus *Paradmeta*, on account of the crenulate wings, the hindwing with an excision between two somewhat prominent teeth (at the 1st and the 3rd radial). The species was evidently named from the conspicuous dark line which, starting near the hind angle of the forewing, is continued almost straight across the hindwing to the middle of its inner margin. The type form was from Sapucay, Paraguay. — **perinquinata** *subsp. nov.* is much smaller (22 or 23 mm), of a paler tint, the upperside being "pale pinkish cinnamon" (Ridgway), the underside with the red shades rather more pronounced; the characteristic line, especially on the hindwing, accompanied by heavier clouding, the line beyond the cell of the forewing with a dark spot between the radials. Taperinha, near Santarem (Dr. ZERNY), the type ♂ in Museum Wien; 2 ♂♂ in Tring Museum, merely labelled "S. America" (coll. MEYER), almost certainly from the same district.
- viridipunctata*. **S. viridipunctata** Warr. (11 d) differs markedly from all the foregoing in the strongly angled hindwing. The greenish or olive colour of the cell-spot of the hindwing is produced by a blend of tawny and grey scales. Antenna of ♂ with fascicles of long cilia. Forewing with the outer areole very small, the 2nd subcostal being stalked (often long-stalked) with the 3rd—5th. S. E. Brazil (type) and Paraguay.
- vigoraria*. **S. vigoraria** E. D. Jones (11 d) is closely like *viridipunctata* but much larger — especially in the ♀ — relatively somewhat longer-winged, distal margin of forewing a little more oblique, cell-spots more equal, that of the hindwing not, or scarcely, mixed with grey. S. E. Brazil.
- cantona*. **S. cantona** Schaus (11 e). In structure pretty similar to *viridipunctata*, which it also somewhat approaches in the extended cell-spot of the hindwing. Shape quite different; cell-mark of forewing punctiform; lines slender, both above and beneath, the dentate postmedian rather conspicuous beneath. Mexico.
- sticticata*. **S. sticticata** Warr. (11 e). 2nd subcostal of forewing stalked or occasionally connate. Cell-spot of both wings black. Smaller and shorted-winged than *oenopodiata*, the median line of the forewing more sinuous, less oblique, with shadowy dark shading distally. The Bolivian ♀♀ which I refer here have on both wings a definite band outside this line. Paraguay, the type only; Buenavista, E. Bolivia, 1 ♂ (worn, but apparently agreeing closely) and 2 ♀♀.
- oenopodiata*. **S. oenopodiata** Guen. (11 e). Very *Scopula*-like, but easily distinguished by the double areole and by the vinous-mixed tuft of the ♂ hindleg. The latter probably associates it with the *munda* group or such

species as *enodiflexa*, but the 2nd subcostal of the forewing is connate or stalked, showing — as in *sticticata*, *viridipunctata*, etc. —, an advance towards the extinction of its base, i. e. in the direction of *Scopula*. S. E. Brazil (loc. typ.), N. Argentina and Bolivia. — *mesembrina* form. (? sp.) n. presumably represents *oenopodiata* in Rio Grande do Sul, but the appreciably more elongate wings, their browner tone, with the minute irroration more reddish, and the weakness of the markings combine to give it a very distinct aspect, more suggestive of an undersized *perletaria* (p. 78). Type in Museum Wien.

S. fissaria Guen. (= *crinta* Warr.) (11 e) forms a separate subgenus (*Schistocolpia* Warr.), very distinct (but in the ♂ only) through the cleft hindwing, the vicinity of the excision with coarse specialised scaling on the upperside and a long fringe of silky hair on the under. The ♀ might easily be mistaken for a form of *vestita* (11 a) but for the purer white vertex, the small black cell-dot of the forewing and more bent postmedian line of the hindwing. Cayenne (type) and the Amazon.

7. Genus: **Hemipterodes** Warr.

A specialised offshoot of *Semaecopus*, the hindwing — especially in the ♂ — with the tornus pointed, or even produced, and with the 3rd radial and 1st median stalked. The ♀♀ of *divaricata*, *subrotundata* and *subnigrata* have on the hindtibia terminal spurs only; the few of *rotundata*, *curviplena* and *malvina* which I have examined have retained also one short proximal spur; of *flavida* and *brunneosticta* I know ♂♂ only. Exclusively Neotropical.

H. camma Druce (11 e), from Guatemala, is only known from the type ♂, which has lost its hindlegs, but seems evidently to be a diminutive *Hemipterodes*, according to its shape and markings and most characters, though it is just possible it may prove an aberrant *Tricentra*.

H. divaricata Warr. (11 e) was named from the branching of the median line of the forewing posteriorly, a character, however, which is shared by nearly all the species of the genus, the enclosed pale triangle being generally very noticeable. *divaricata* is a small species, of a warm brown colour with dense irroration, the hindwing characteristically shaped, the very oblique outer line well visible on both wings (slight on the hindwing), running to the distal margin in cellule 3, behind which it forms a series of crescents. Underside with the median line and rather broad but irregular terminal shading. Venezuela (type), Panama and Costa Rica.

H. subrotundata sp. n. (11 e). Puzzlingly similar to the preceding, scarcely showing any constant difference except that both wings are appreciably more rounded (about as in *rotundata*). Colour slightly less bright, with a more fleshy tinge, outer line running to the margin in cellule 4, or making a tiny loop on the 3rd radial. Forewing beneath more uniformly suffused, with no definite dark marginal shade; both wings beneath with a discernible (often distinct) postmedian line present, nearly parallel with the median. Venezuela to French Guiana, the type ♀ from Aroewarwa Creek, Maroewym Valley, Surinam, in the Tring Museum. Easily distinguished from *rotundata* by the colour and by the ♀ hindtibia.

H. rotundata Dogn. (11 f). Distinguished by its violet-grey tone (in part darker and greyer beneath) and generally by the outer line, which forms much narrower crescents posteriorly. ♀ hindtibia 3-spurred. French Guiana.

H. flavida Prout (11 f). Larger and more yellowish than *divaricata*, the outer line on the hindwing strong anteriorly, suddenly becoming weak or obsolete about the 2nd radial. E. Peru.

H. curviplena Warr. (11 f). About as large as *flavida*, in colour intermediate between *subrotundata* and *curviplena*. *rotundata*, distinct from all in the sinuate distal margins. S. E. Brazil. — **subvinacea** subsp. nov. More vinaceous-tinged, the concavities of the distal margins reduced but quite appreciable. Dutch and French Guiana, the type ♀ from St. Jean de Maroni (Tring Museum). — **grisescens** subsp. nov. Shape as in *subvinacea* or slightly intermediate; wings proximally pale, distally grey-clouded, copying exactly the coloration of *subnigrata* (11 g); underside with the cloudings indicated, but less blackish than in that species. E. Bolivia (F. STEINBACH), type ♂ (Prov. Sara, Santa Cruz de la Sierra), in Tring Museum.

H. selaostigma sp. n. (11 f). In shape and coloration near *grisescens*, the hindwing, however, at least as broad and convex-margined as in *rotundata*, subterminal line forming teeth or angles on the veins, as in *subnigrata*, median line of forewing double throughout, not only on hindmargin; particularly characteristic are the enlarged and glittering cell-marks. Forewing beneath with distal part (somewhat over $\frac{1}{2}$) dark grey. St. Jean de Maroni, only the type known (Tring Museum).

H. nubilata Schaus is unknown to me, but certainly belongs to this genus. 18 mm. Very close to *nubilata*. *divaricata* in shape. Light brown, irrorated with some reddish brown scales. Forewing base darker, limited by

the inner line: a median dark line, inwardly oblique, passing close beyond a white discal line; space beyond median line between veins 2 and 6 dark violaceous brown; apex also darker, limited by a subapical line from costa to outer margin at vein 6. Hindwing thickly irrorated with violaceous brown; only the terminal line visible; fringe yellow, spotted with violaceous." Peru, without exact locality.

- malvina*. **H. malvina** Druce (11 f). In shape somewhat approximated to *curviplena*, from which it differs in tone, in the dark clouding at base of forewing, more extended posterior markings distally and in the dark-marked underside, which approaches that of *subnigrata*. Panama and Mexico (type).
- brunneosticta*. **H. brunneosticta** Warr. (11 f) has almost the extreme wing-shape of *subnigrata*, but is very distinct in the curiously speckled brown wings. Carabaya, S. E. Peru.
- subnigrata*. **H. subnigrata** Warr. (11 f) may be known at once by the shape and coloration and does not seem to be variable. Both wings beneath with heavy black-grey subterminal bands, that of the forewing broader and connected with the equally dark cell-mark by some shading at the base of the medians and the 3rd radial. Described from French Guiana, where it is fairly common; its range extends to Venezuela, Trinidad and E. Colombia.

8. Genus: **Lipotaxia** Prout.

Another derivative of *Semaepus*, characterized by the loss of both the proximal spurs of the ♀ hind-tibia. Evidently near *Hemipterodes*, scarcely differing from the 2-spurred species of that genus except in the rounded hindwing and the scheme of markings. The large and conspicuously pale apical spot of the forewing, though indicated in some *Semaepus*, is here a very good clue to the generic position. Exclusively South American.

- rubicunda*. **L. rubicunda** Warr. (11 f). Glossy reddish brown, minutely irrorated with scintillating scales, the pale grey markings shown in our figure, on the underside darker grey narrowly, connected along midtermen. ♂ with a curious large flap from the edge of the mesosternum, which may be appressed to the midcoxa but when erected reveals a strong pencil or tuft of reddish hairs. Colombia to French Guiana and the Lower Amazon, the type from Trinidad.
- perpulverosa*. **L. perpulverosa** Prout differs from *rubicunda* in its darker costal margin, darker irroration, presence of a pale posterior patch on the forewing (less definite than that of *irregularis*) and close approximation of the postmedian of the hindwing to the termen. Rio Ucayali, only the type definitely known.
- irregularis*. **L. irregularis** Prout (11 f) was erroneously described as a remarkable aberration of *rubicunda*; it differs not only in the markings (especially the semicircular posterior patch of forewing and the paler, differently marked hindwing and underside) but also in the ♂ thoracic structure; the sternal flap is wanting, though there is a slender hair-pencil from the base of, and lying along, the midcoxa. N. Venezuela, St. Jean de Maroni (type) and Taperinha, near Santarem, hitherto always in Company with *rubicunda*.
- rotundata*. **L. rotundata** Schaus, described as *Haemalea*, must be another very close ally. "Forewing: basal $\frac{2}{3}$ dark fawn-colour, limited by a semicircular violaceous line; space above this to end of cell also dark fawn-colour, except costa, which is finely violaceous; at end of cell a small white spot, beyond which a median violaceous shade extends from costa to the semicircular line; outer portion violaceous, except a large round apical white spot, which contains 3 dark terminal spots. Hindwing pale fawn-colour; a subterminal fine violaceous line, wavy towards anal angle; the apex to vein 6 violaceous. 15 mm." Aroa, Venezuela.
- segmentata*. **L. segmentata** Warr. (11 g). Distinct in its colouring, otherwise fits in most respects to the description of *rotundata*, especially as to the hindwing, though its apical patch is continued narrowly along the distal margin, forming in its posterior part a more or less interrupted line. E. Peru.
- subvestita*. **L. subvestita** Prout. Closely like a paler *segmentata* (11 g), with the subterminal line of the hindwing closer to the termen, darker, but enclosing very little dark shading at apex. Very distinct, however, in that the ♂ hindwing beneath is rough-scaled throughout and clothed with long, slightly curled hair for almost the entire length of the median branches. Fonte Boa, only the type known.

9. Genus: **Trygodes** Guen.

Although this striking group of moths has been considered, ever since it was first made known by GUENÉE, as a separate genus, it really differs from *Semaepus* in very little excepting the more dentate margins and in most of the forms the extended dark-green maculation, and is in some degree connected by intermediates. Antenna of ♂ pectinate (*physciata*, *ovipara* and probably *basisignata*) or with paired fascicles of cilia. Hindleg of ♂ aborted, hair-pencilled and spurless; of ♀ with 4 well-developed spurs. 2nd subcostal of forewing — except in the *musivaria* group — arising from cell. Exclusively Neotropical.

T. physciata *Feld.* (11 g). Relatively somewhat broader-winged than most of the species, the green *physciata*. markings very characteristic. Midtibia of ♂ glabrous. Amazon.

T. basisignata *Prout* (11 g). Much smaller, ground-colour paler, postmedian line more distally placed, *basisignata*. forewing with the green markings differently formed and a dark spot close to base. La Oroya, Carabaya, only the type ♀ known.

T. ovipara *sp. n.* (11 g). Close to *physciata* in shape and structure, but distinguishable at a glance by *ovipara*. the small oval (or very slightly reniform) cell-marks. Peru: Tarapoto, Loreto (MATHAN), only the type ♂ known (ex coll. OBERTHÜR).

T. spoliataria *Möschl.* (= *columbaris* *Btlr.*) (11 g). Variable above, but always with the green cell-spots *spoliataria*. small compared with those of most of the species; an indistinct subterminal shade, which becomes much stronger on the underside, is pretty constant and recalls that of the *musivaria* group. In the name-typical forms (Surinam and reaching Venezuela westward and the Amazon southward) the green spots are never intense, generally pale yellowish green, the antemedian wanting or extremely weak. — ab. (? subsp.) **accentuata** *nov.* (11 g) has *accentuata*. the central green markings darkened, those of the forewing somewhat suggesting a "looper" caterpillar with its body strongly arched, the antemedian spot present. This is the prevailing form in Costa Rica, Colombia and the Chanchamayo district, but the two forms seem to meet in N. W. Venezuela and E. Colombia. Type from Chanchamayo (coll. British Museum, ex coll. OBERTHÜR).

T. dissuasa *Prout* (11 h). Almost exactly like a smaller *spoliataria*, well irrorated and nearly always *dissuasa*. weakly marked, but with the midtibia of the ♂ glabrous, whereas in *spoliataria* it is clothed with long dense hair; cell-mark of hindwing almost circular, on the underside wanting. This and some details of the position and course of the lines distinguish it readily from even the most weakly marked *solaniferata*. W. Ecuador: Quevedo and La Chima (Prov. de Los Rios). — ab. **maculifera** *nov.* has small dark-green spots, those *maculifera*. of the forewing on each side of the 3rd discocellular with a dot in front of them (base of cellule 6). La Chima, 1 ♂.

T. glaucorrhans *sp. n.* (11 h). Very distinct, superficially least unlike *desolata* but with the 3rd joint *glaucor-* of the palpus longer, the midtibia of the ♂ glabrous, the wing-margins less deeply dentate. More brownish, *rhanis*. the markings weaker, the green markings all small and round, the two outside the cell of the forewing parallel with one another, not (as in the *niobe* group) nearly parallel with the termen. W. Ecuador (MATHAN) in the OBERTHÜR collection, the type ♂ from Balzapamba; the 5 ♀♀ (Balzapamba, La Chima and Chimbo) have some of the green spots dark, merely with pale edges.

T. niobe *Druce* (11 h). Except from *amphion* (which see), this fine species is easily distinguishable by *niobe*. the arrangement of the green spots. Midtibia of ♂, as also in *amphion*, strongly tufted. Costa Rica (type), Colombia and Peru. — **desolata** *Prout*, from N. W. and E. Colombia and Venezuela is a race, or perhaps separate *desolata*. species, with the spots smaller and of a very pale green.

T. amphion *Schaus* (11 h). Closely like the most brightly coloured forms of *niobe*, generally larger; the *amphion*. spots considerably enlarged, the discoidal series on the forewing extending into the base of cellule 2. Costa Rica. A race (?) in Chanchamayo.

T. viridiplena *Prout* (= *musivaria* *Druce*, nec *H.-Sch.*) (11 h). Much larger than *musivaria*, the green *viridiplena*. markings relatively larger, the midtibia of the ♂ as in the two preceding. Venezuela (loc. typ.), also from Panama, Colombia and Matto Grosso.

T. musivaria *H.-Sch.* (= *herbiferata* *Guen.*) (11 h). The commonest and most widely distributed *Try-* *musivaria*. *godes*, recognizable by its small size, glabrous ♂ midtibia and ample dark-green markings. A further characteristic of this species and the following is the strong inward bend of the subterminal of the forewing between the radials, with a conspicuous blackish dot pointing outward on the 2nd radial. The type was from Brazil, but the range extends to Costa Rica and Trinidad. The larva is smooth, moderately slender, green, with white lateral stripe and in Rio Grande do Sul is found, according to MABILDE, on a species of *Angelica* from October to December; pupates among leaves, the moth emerging after 10 days.

T. solaniferata *Guen.* (12 a) is closely related to *musivaria*, possibly a recurrent form of the same; mark- *solanifera-* ings, particularly the posterior spot of each wing, considerably reduced, generally much paler green. Brazil and *ta*. Paraguay. — **herbida** *Oberth.* (12 a) is an aberration or race with the green spots bright, though small. Cachimbo *herbida*. (Bahia). — **tarapotensis** *subsp. nov.* (= *merta* *Oberth.* nec *Druce*) (12 a) has the irroration reduced, giving it a *tarapoten-* very clean appearance, the green markings outside the cell of the forewing rather compact, the postmedian *sis*. line of both wings somewhat more distally placed than in *solaniferata* type. Tarapoto, E. Peru (MATHAN), 8 ♂♂, 1 ♀ from the OBERTHÜR collection, the ♀ having the markings reduced. — **merta** *Druce* (12 a) is probably a *merta*. further race but, to judge from the few examples known to me, scarcely constantly distinguishable from *solaniferata* unless by the shape of the group of green spots of the forewing. Guatemala (loc. typ.), Mexico and Honduras.

simplicis-
simila. **T. simplicissima** Dyar is unknown to me and I doubt whether it belongs to this genus. "Wings translucent whitish, thickly irrorated with pale grey, the irrorations largely confluent; forewing with 2 lines of grey, wavy, approximate, subparallel; hindwing with a single mesial line; a dark line on margin of both wings; outer margin angled at vein 4 on both wings. Expanse 36 mm." Orizaba, Mexico, a ♀.

10. Genus: **Neothysanis** Dogn.

Another offshoot of *Semacopus*, differing chiefly in having the distal margin of each wing sharply angled in the middle. Antenna of ♂ ciliated. Pectus not so strongly hairy as in typical *Semacopus*, hindleg similarly aborted and tufted in the ♂, in the ♀ with all spurs. Type of the genus, *bicolor* Dogn.

aloxogram-
ma. **N. aloxogramma** Prout (12 a) differs from the other species chiefly in the formation of the lines, the antemedian excurved and waved the postmedian placed at $\frac{2}{3}$ the wing-length, gently sinuate. Bolivia: Rio Suruta, 1 ♂.

imella. **N. imella** Druce (12 b). Founded on a single ♀ from San Geronimo, Guatemala, and regarded, though doubtfully, as an *Erosia*; may perhaps represent a different race from the forms which have subsequently been received, though sparingly, from French Guiana, S. Peru, Bolivia and Brazil, the colour in them being of a brighter, less greyish brown. The straight, oblique outer line is generally very distinct, finely pale-edged proximally.

bicolor. **N. bicolor** Dogn. may well, according to the description, be merely a colour-form of *imella*, the black line bordered on each side with "gris marron", the pale line on its proximal side rosy, the ground-colour beyond the line darker than proximally. Zamora, near Loja, 1 ♂.

11. Genus: **Proutoscia** Schaus.

Near *Asellodes*, of which it might easily be treated as a section, differing chiefly in wing-shape. Both wings more rounded than in any *Asellodes*, the ♂ hindwing with a much narrower excavation than that of *A. fenestraria*, probably its nearest relative; discocellulars not so sinuous.

mirifica. **P. mirifica** Schaus (12 b). A large and striking species, with the hyaline area of each wing ample, quite differently shaped from those of any known *Asellodes*. Hindwing beneath in front of the 2nd radial with a ridge of long, curled hair, the whole terminal region from the 1st radial to the posterior excavation similarly clothed. Costa Rica.

12. Genus: **Asellodes** Guen.

A remarkable genus, with some of the characters of *Trygodes*—fasciculate ♂ antenna, tufted ♂ hindleg, double areole of forewing, 2nd subcostal arising from the cell —, but probably well isolated. Hindtibia of ♀ with all spurs. Wing-shape very irregular, that of the hindwing differing greatly in the sexes; in the typical group the ♂ hindwing has the termen excavated posteriorly, fringed more or less strongly with hair on the underside at the excavation. Very characteristic are the extensive hyaline patches. In the venation the most striking feature, at least in the typical group, is the point of origin of the 2nd radial, which arises much nearer to the 1st than to the 3rd. The genus is exclusively Neotropical.

A. Hindwing of ♂ without hair-fringed excavation posteriorly (*Pseud-asellodes* Warr. = *Oxypterodes* Oberth.)

constellata. **A. constellata** Warr. (= *dapalis* Oberth.) (11 i). A rather large and brightly coloured species, known at once by its shape and markings. The ♀ is unknown to me, the ♂ common in E. Peru, especially at Huanca-bamba, Cerro de Pasco.

lacunata. **A. lacunata** Dogn. (= *daphnogethes* Oberth.) (12 b). Much smaller, shape less extreme, the hyaline markings differently arranged. N. Argentina and Paraguay, the type from Tucuman. I know ♂♂ only of this form. — **cassiopeia** Bastelb. (14 a). Much greyer, otherwise scarcely distinguishable. I know ♀♀ only, a little larger than the preceding, and should confidently have treated it as the ♀ to *lacunata* but that DOGNIN's "rosy" type was a "♀" and BASTELBERGER possessed both sexes of the "blue-grey" *cassiopeia*. Probably they are colour-forms, chiefly but not exclusively sexual. Tucuman. — **bahiana** *subsp. nov.* ♀ unknown. ♂ brighter than that of *lacunata*, almost as clear vinaceous as in *laternaria*, only the (narrowed) outer band greyer; central hyaline patches of forewing more broadly confluent, subterminal line less sinuous. Bahia (PENTHER expedition): Rio Preto, between Boquerao and Sta. Rita, the type in the Natural History Museum, Vienna, a paratype in my collection.

B. Hindwing of ♂ with hair-fringed excavation posteriorly (*Asellodes*).

A. vitraria *Schaus* (11 i). Colouring nearly as in *fenestraria* ♂, shape and markings very different: fore-*vitraria*. wing with termen almost straight from 5th subcostal to 1st median, hindwing with strong teeth at 2nd subcostal and 1st radial (the latter somewhat the longer) very obtusely emarginate in front of anal angle, the "hair" (or hairlike scaling) at the 3rd radial to 1st median dense but short. Ecuador (type) and E. Peru.

A. bivitraria *sp. n.* (11 i). Extremely similar to *vitraria*, with which it has hitherto been mixed; yet *bivitraria*. really very easy to separate. Hindwing with the anterior tooth longer than the posterior, which is rounder and blunter than in *vitraria*, the excision in front of anal angle narrow but deep and acute, the fringe of hair-scaling stronger. E. Peru and E. Bolivia, the type from Palcazu, Junin (SEDLMAYR) in Mus. Tring. The Peruvian forms are a little smaller and broader-winged than *vitraria*, but this distinction scarcely applies to the Bolivian.

A. hebetior *Warr.* (= *daulias Oberth.*) (11 i). Rather smaller and greyer than the preceding, teeth of *hebetior*. hindwing very much reduced, excision in front of anal angle nearly as in *bivitraria*. The ♀ is similarly marked to the ♂, but of course lacks the special modifications of the anal region of the hindwing; the termen of this wing is more regularly dentate throughout and the vitreous spot in cellule 6 isolated from the central group. Best known from the type locality, Maroni River, but the Rev. A. M. Moss has taken a few at Pará.

A. laternaria *Guen.* (14 a). Near the genotype in shape and structure, but with the forewing less strongly *laternaria*. angled at the 1st median. Further very distinct in its more rosy ground-colour and differently formed hyaline patches; the latter on the hindwing are somewhat variable, the outer spot sometimes absorbed into the central one. Pupa similar to that of *fenestraria* (COLLENETTE, from larvae collected in Panama Canal zone). Described from Brazil, but very widely distributed: Panama (with Taboga), Trinidad, Venezuela, Bolivia and even La Plata (town).

A. platygymna *Prout* (12 b). Similar in coloration to *laternaria* but with the hyaline patches still larger; *platygymna*. but as the ♂ hindwing is even less dentate-margined than *constellata* and the special clothing of the underside only indicated at the anal angle, it should properly be regarded as a link between typical *Asellodes* and the section *Pseudasellodes*. Bolivia: prov. del Sara, only known from 2 ♂♂.

A. nigrofasciaria *H.-Sch.* Unknown to me. Its author writes: "As I have only a ♀ before me, the cor-*nigrofasciaria*. rect position is uncertain. Size and habitus of *fenestraria*, the cinnamon-reddish disc of the forewing bounded by broken but sharply defined flesh-coloured costal margin, broad apex and anal angle; the disc of the hindwing in the basal half transparent, its distal half fleshy reddish." GUNDLACH adds that the specimen was bred from a larva found on guayaba (*Psidium*) in the Trinidad Mountains (Cuba) and that the two colours on the forewing are separated by a dark line and gives some further details of the markings.

A. fenestraria *Guen.* (♀ = *thyreata Feld.*) (11 i). Variable, the hyaline patch of the forewing always *fenestraria*. ample, approximately triangular, its hind angle (in cellule 2) rounded, its hindmargin irregular, its centre either cut by a band of the ground-colour or at least with a dark mark just proximal to the 2nd discocellar, commonly also with some scattered dark marks or dots; hindwing with the central patch moderate or small, very irregular in shape, the most constant outer spot (in base of cellule 6) well isolated from it. Cuba and Costa Rica to S. Brazil, the type believed to have come from Colombia. The pupa is rather robust, dark and glossy (suggesting a cocoon-maker or subterranean pupa), the central pair of cremastral hooks strong, the others extremely fine (preserved pupae from Pará, A. M. Moss). — **daphnites** *Oberth.* (12 b) appears to me to be nothing *daphnites*. more than very large, brightly coloured *fenestraria*; at least I can point to no definite distinction. Both OBERTHÜR'S examples from Huambo, the type locality, are of this form, and he also referred here one from Maroni River and one from Cochabamba, Bolivia. These fine forms, which are known also from Ecuador, seem to be chiefly western.

13. Genus: **Haematopis** *Hbn.*

This genus, which (following a laps. cal. of HULST'S) is often quoted in the American literature as *Haematopsis*, is nearly related to *Calothysanis*, with which it agrees in the very strongly pectinate ♂ antenna, fully developed hindleg in both sexes, venation of the forewing and other characters. It shows, however, in the hindwing venation one feature which is of very rare occurrence in the *Sterrhinae* — a stronger anastomosis of the costal vein with the cell, followed by a gradual instead of sudden divergence. The early stages are well known and are referred to under the heading of the single known species.

H. grataria *Fb.* (= *saniaria Hbn.*, *successaria Walk.*) (12 c). One of the best known North American *grataria*. species and quite unlike any other Geometrid yet discovered, though the beautiful colouring recalls some Palaeartic *Rhodostrophia*. Generally not very variable, but — ab. **annettearia** *Haimbach* has been considered worthy *annettearia*. of a separate name, as in recurred for several years at Cincinnati; both wings suffused almost throughout with

pink. — Egg elliptical, flattened, wedge-shaped, the larger end moderately truncate, the entire surface reticulated and pitted. The larva has 5 instars; moderate, or rather stout, nearly cylindrical, head somewhat bilobed, held obliquely, free from and higher than the prothorax, tubercles and setae except in the first stage obsolete; ground-colour pale, heavily mottled with dark brown or blackish. Pupa suspended in a delicate network cocoon; amongst the few Geometrid pupae studied by Dr. EDNA MOSHER, it was considered to form a separate group, characterized particularly by having the "body with a long bifurcate projection at the cephalic end, densely covered with hooked setae". The moth is continuously brooded and has a very wide distribution in the eastern United States, the warmer part of eastern Canada and westward at least to Colorado.

14. Genus: **Calothysanis** Hbn.

This genus, which belongs chiefly to Northern and Western Asia, with one well-known species extending into Europe, has been discussed in Vol. 4, p. 47, under the younger name of *Timandra*; the reasons there given for rejecting *Calothysanis* were inadequate, inasmuch as HÜBNER'S name and diagnosis were founded entirely on *amata* and do not fit *Scopula imitaria*. The strongly pectinate ♂ antenna, 4-spurred hindtibia, acute apex of forewing, tailed hindwing and generally the scheme of markings sufficiently characterize the genus. Only one species is known from the New World.

amaturaria. **C. amaturaria** Walk. (11 i). Readily distinguishable from its Old-World relatives by the concavity of the anterior part of the distal margin of the forewing and the consequent angulation at the 3rd radial. Fringes and at times the distal margins darkened. — An aberration mentioned by PACKARD, with a broad brown shade succeeding the extradiscal line, may be called, by analogy with that of *C. amata* Linn., ab. **effusaria** nov. — *effusaria.* Egg oval cylindrical, the surface coarsely pitted; whitish yellow when laid, changing within 24 hours to red. Larva on Polygonum, long and slender, in its later stages with a barrel-shaped expansion of the 1st and 2nd abdominal segments, the rest of the body marked with white, the ground-colour either light brown or blackish. Pupa light in colour, mottled and speckled, two pairs of tubercles at and between the bases of the antennae; spun in a few threads among herbage. The moth is common in the Eastern States of North America.

15. Genus: **Cosymbia** Hbn.

Palpus shortish to moderate, the terminal joint, even in the ♀, not greatly elongate. Antenna of ♂ strongly bipectinate, of ♀ simple. Hindtibia of ♂ with 2 spurs, of ♀ with 4. Venation of forewing distinctive in that the first 4 subcostals are stalked well beyond the 5th, which arises at (or just before or behind) the apex of the moderate or rather small, undivided areole. Hindwing with 2nd subcostal not or very slightly stalked. Egg long-oval, with irregularly hexagonal reticulation. Larva nearly smooth, the head rather large, bilobed, the coloration variable. Pupa much like that of a butterfly, strongly attached by the tail to a leaf by silken threads, and with a silken girth between abdominal segments 2 and 3. The genus is chiefly Holarctic, with stragglers in South America.

pendulinaria. **C. pendulinaria** Guen. (= *quadrannulata* Walk., *dilucidaria* Rothke, *lumenaria* Hulst nec Hbn.) (11 i). Nearly related to the Palearctic *pendularia* Cl. (Vol. 4, p. 142), slightly rounder-winged, the cell-rings rarely so sharply expressed, the median shade grey rather than rosy. Easily distinguished from the other American species by its whitish or cold grey colouring, almost entirely without brown or reddish tinge. The name-typical race, from eastern North America, is generally small and pale, especially, I think, in the 2nd brood. The types cited in the synonymy (*pendulinaria*, "North America"; *quadrannulata*, New York; *dilucidaria*, Scranton, Pa.) *nigricaria.* are all closely similar; but dark examples, like the two following, occur with them. — ab. **nigricaria** Rothke (12 c), also from Scranton, has the upperside so densely irrorated throughout with black-grey that it may legitimately be called melanic, though the cell-spots, traces of the subterminal and sometimes a distal edging to the postmedian, remain white, while the median shade is indicated in deeper blackish. Occurs also among *griseor.* the following. — **griseor** Mc.Dunnough (12 c) is intermediate between the two preceding in the amount of the dark irroration but, although it seems to have become almost a local race in British Columbia (whence it was described), it is scarcely a well differentiated subspecies, as a good many eastern specimens, especially of the first brood, closely approach it, so that ROTHKE, in naming the two extreme forms, considered it the normal. — The early stages of *pendulinaria* are well known and have been more or less fully described, particularly by SCUDDER and DYAR. The larva feeds on sweet fern (*Comptonia*), blueberry (*Vaccinium*) and other plants and has 6 instars. Its general colour is green, variable in intensity, with rust-red or brownish head and markings; but a brown form is known, at least in the first stage. Widely distributed in Canada and the United States, the imago from May to early August, resting on tree-trunks.

dalaria. **C. dalaria** Hulst (12 d), described as ochreous washed with snuff-colour, recalls the Palearctic *porata* L. in its coarse irroration and strong median line or shade. Moderately variable, including the size, though the "18 mm" given by HULST seems exceptionally small. The 3 originals were from California and I am told by

Mr. BENJAMIN that the one in the United States National Museum which is considered the type is in very poor condition, rubbed and faded, with the lines, excepting the median shade, almost lost, but that it was probably originally like our figured ♂ from Sonoma County. The range extends to the southern part of Vancouver Island. — *piazzaria* Wright seems to be merely a form of *dataria*, agreeing in the genitalia. The description gives it the general aspect of “*myrtaria*” (i. e., *packardi* Prout) but with more nearly the maculation of *pendulinaria* (11 i) and unfortunately ignores *dataria*. Emphasis is laid on the heavy black encirclement of the ocelli (cell-spots), and this is very manifest in the few good specimens which I have seen; perhaps also the less clouded wings and weaker or less complete antemedian line are reliable characters. Mr. BENJAMIN has shown me, as “agreeing [I suppose in the ♂ genitalia, which he examined] with a paratype of *piazzaria* from Echo Mt., Calif.”, a small 2nd-brood *dataria* ♂ from Wellington, B. C., which bears much the same relationship to the figured specimen as does 2nd-brood *suppunctaria* Z. to 1st-brood (see Supp. Vol. 4, p. 32): smoother-looking and much more weakly marked, closely like a small specimen of the following form and very unlike *piazzaria* in its cell-rings. The type locality of *piazzaria* is San Diego, to which may be added Pasadena and Mt. Lowe; Arizona is also mentioned. — *microps* form. nov. (12 d) is apparently, by the genitalia, a third form of *dataria*, perhaps a good geographical race in Colorado, but with similar examples cropping up sporadically among 2nd-brood *dataria* and even closely approached by an occasional *packardi*. Length of a forewing 11.5—13 mm; tone yellowish, irroration not intense, median shade moderate to rather weak, cell-marks small, often minute, their circumscription slender, often extremely slender. Colorado: Glenwood Springs, Durango, Denver, etc. (OSLAR), May and again in August and September, without manifest seasonal variation but unfortunately mostly in poor condition; type in the Tring Museum, paratypes in that collection, in the United States National Museum and (presented by the latter) in my own and that of the British Museum. Compared with similar *packardi* — with which I first wanted to unite it — *microps* shows more inclination towards yellow, *packardi* towards red; or in the more exact system of RIDGWAY’S Table (p. 21 of his well-known work) one may say that the former favour the “No. 17” side of No. 15 (O—Y), the latter the “No. 13” side (OY—O). Both, however, are troublesomely variable in hue.

C. packardi sp. n. (= *myrtaria* Pack. nec Guen.) (12 d). As it is now definitely known (see below) that the species which has passed under this name among students of the Nearctic Geometridae (beginning with a careful description and fairly good figure by PACKARD) is not that of GUENÉE, it becomes necessary to treat it as a new species or possibly an eastern race of the preceding, with which it very nearly agrees in structure. Mr. BENJAMIN, on comparing the genitalia, found, as he informs me, some small differences in the length of the aedoeagus and the nature of the curvature of the claspers; *packardi* also shows a small kink in the sacculus-arm near its distal end which is not observable in its western relatives, so far as I have yet examined them. We both agree, however, that a study of more preparations is needful in order to ascertain the measure of constancy, and to understand the significance of these differences. Palpus in both sexes shorter than in *myrtaria*; antenna of the ♂ with the pectinations less long; hindleg of the ♂ not tufted, the tibia of about the same length as the tarsus. Generally smaller than *dataria* (at least in the 1st generation), less irrorated, median shade weaker, often obsolescent, postmedian of forewing anteriorly a little more irregular (incurved between the radials, bent outward at 1st radial, anteriorly inclined to recede slightly from termen), antemedian rarely so complete, cell-spots often more heavily dark-ringed (more recalling *piazzaria*), underside more weakly marked. Widely distributed in the Eastern States and the Middle West of North America, though rarely, if ever, very common. Boston to North Carolina, Alabama, Illinois and Missouri provide known localities; type a ♂ from 2 miles west of St. Louis, Mo. (BUSCK) in the United States National Museum (genit. No. 667. F. H. B.). The larva, according to Goodell (Amhurst, Mass.), is reddish brown striated with ochreous; a large subdorsal dark brown shade on each of the 6 middle segments, a darker dorsal stripe. When young, much attenuated and of a brighter colour. Feeds on *Comptonia* and *Gaylussacia*. Pupa very pale flesh colour, abdomen more or less thickly spotted with black, wing cases pale, with black streak along upper margin.

C. funginaria Guen. (12 d). Founded on a single ♀, the locality unknown, therefore at present somewhat of a stumbling-block. I have not yet quite matched it, but it is so similar to *packardi* in structure and markings that I shall not be surprised if it is found that both are races, or even aberrations, of one species. It would, however, be premature to apply GUENÉE’S doubtful name to the well-known North American species. The termen of the forewing is very slightly more sinuous, making the apex appear a trifle more falcate as GUENÉE notices; colour a little darker, with more suggestion of purplish; cell-marks narrow. I thought the areole was a little smaller than in *packardi*, but find that it varies in the latter.

E. myrtaria Guen. (12 d). A mixture of at least 3 species has certainly occurred under this name and possibly others still remain to be disentangled from it. JONES mentions a darker form of (probably) one of them from Bermuda, but I have no direct knowledge of it. GUENÉE’S type ♂, otherwise in good condition, has lost its abdomen and hindlegs, so that we are robbed of two of the most valuable criteria for its identification. Mr. BENJAMIN has, however, examined very carefully the type in the United States National Museum and has very little doubt that he has correctly determined, as a “perfect match” to it, a ♂ from Glenwood,

Florida, which is characterized by having a patch of long, coarse hair or hair-like scaling on the outside of the proximal part of hindtibia and some correlated coarse projecting scales on the distal part of the femur. Further, the palpus is too long for a true *Cosymbia*, the ♂ pectinations also long and it seems to make a definite transition towards some South American *Anisodes* (compare the *caducaria* group). The type locality was *ignotaria*, merely given as North America (in May), but must probably have been Georgia or Florida. — ab. **ignotaria** *Walk.* is a larger form, with somewhat better defined circumscription to the cell-dots, but probably does not need a separate name. The locality of the type is not known, but the British Museum has also a few from *triseriata*. Georgia and the United States Museum has a very perfect match from Everglade, Florida. — ab. **triseriata** *nov.* (12 d) has generally the size of *ignotaria*, but is more sharply marked, especially the subterminal maculation, which divides itself into groups near costa, near hindmargin and between the radials. The name apparently originated from WALKER, was used in the British Museum collection by WARREN and thence got into the synonymy through HULST; but no description has ever been published. Besides the original specimen, a ♂ from E. DOUBLEDAY (no doubt from Florida), the British Museum has a ♀ from S. Domingo, which indicates that the species should also be sought in the West Indies and renders it possible that this was the *Cosymbia* which HERRICH-SCHAEFFER recorded from Cuba under the name of *porata* L. — The larva, according to GUENÉE, feeds on myrtle and is light green, with yellow-reddish head, legs and anal end, the 5th segment with two small black dots. Pupa darker green with a white lateral line, bright rosy anal extremity and edging of the wing-cases. He does not indicate the source of his information, which may, therefore, relate to the following species.

benjamini. **C. benjamini** *sp. n.* (12 d). In the course of his investigations, Mr. BENJAMIN has made the interesting, yet somewhat embarrassing discovery that there is a second *Cosymbia* in Florida, so similar to the preceding as to be scarcely distinguishable by any superficial test yet applied to it, but quite different in the ♂ genitalia and in the simple (not tufted) ♂ hindleg. The 3rd joint of the palpus and the pectinations of the ♂ antenna may be a trifle less long, but the difference — if real — is so slight that it can hardly be relied upon. I have made very exact comparisons of the type with *myrtaria*, in the hope that some of them may open up clues to the differentiation: but as both species are evidently variable, it cannot be expected that many of them will hold throughout. Coloration perhaps slightly less reddish, owing probably to its moderately dark, though minute, grey irroration; median shade somewhat better developed; postmedian dots more blackish, with a faint shade connecting them; forewing beneath more rosy, hindwing here whitish, becoming slightly rosy distally and slightly more so at costa, both wings with faint rosy lines, the rosy terminal very definite, swelling a little between the veins. Florida; the type ♂ from St. Petersburg, October 16—23, in the United States National Museum (genit. No. 669, F. H. BENJAMIN); a second ♂ from Stemper, July 1—7 (genit. No. 678, F. H. B.), the former (but apparently not the latter) looking a little shorter-winged (terminal of forewing slightly less oblique) than normal *myrtaria*. Hindtibia about as long as femur, the tarsus almost $1\frac{1}{2}$ times as long. The same Museum kindly sent for my examination a number of Florida *Cosymbia*, including several from these two localities, but nearly all ♀ and mostly in poor condition; the 4 ♂♂ which have still a hindleg are *myrtaria* and show that both species occur at St. Petersburg; the Stemper ♀♀ include none of the *triseriata* forms and are, I think, chiefly (perhaps wholly) *benjamini*.

culicaria. **C. culicaria** *Guen.* (12 e). Readily distinguishable by its small size, rather narrow forewing, regularly rounded margin of hindwing, rosy fringes, etc. Our figure is from a Lakewood (New Jersey) ♂, dated 28 April; the 2nd brood specimens are often considerably smaller still. Local in the southern Atlantic States (New Jersey to Florida), the originals from Georgia.

dyschroa. **C. dyschroa** *Prout* (12 e). Quite unlike all the rest of the *Cosymbia* in its glossy greenish tinge, dark reddish terminal line, etc.; apex of forewing acute; hindwing well angled. Described from Trinidad, known also from French Guinea and Pará.

anaisaria. **C. anaisaria** *Schaus*, described from a ♀ as *Craspedia*, belongs here. Shape about as in *dyschroa*. "Light buff, sparsely irrorated with violaceous brown scales. Discal points yellow, circled with dark violaceous; an outer row of violaceous points on veins; a terminal row of black points between the veins; a faint darker shade between the discal spots and inner margins; dark points on subcostal and median veins of forewing at $\frac{1}{3}$ from base. Underneath forewing shaded with brown; discal spots less distinct; outer and terminal rows of points." São Paulo. I have access only to a few ♀♀ from Castro, Paraná in poor condition.

angeronaria. **C. angeronaria** *Warr.* (12 e). Yellow, so densely irrorated and strigulated with reddish as to appear more or less orange or (if the irroration is brighter rose-colour) more pinkish. Variable in the strength of the markings, especially the median shade, which may be almost obsolete or quite conspicuous. S. E. Brazil (Rio district to Castro, Paraná).

mossi. **C. mossi** *sp. n.* (14 f). Near *angeronaria* (12 e) but can scarcely be a form of it. Terminal of forewing straighter, making the apex appear more acute; of hindwing less bent at the 3rd radial. A purple terminal

line, contrasting sharply with the light yellow fringes, which bear only a few purple dots; both wings largely suffused with purplish, only leaving freer a band outside the postmedian, on the forewing pretty complete, on the hindwing only developed from about the 2nd radial hindward; markings obsolescent, consisting of minute white cell-spots and grey postmedian vein-dots. Pará (Rev. A. M. Moss), only the type ♂ known.

C. carolina *E. D. Jones* (14 f) is evidently also related to *angeronaria* and has some similarly rosy *carolina*. strigulation which does not show well in the figure; the 2 principal lines are represented by dark vein-dots and the postmedian is accompanied proximally by a dark shade from the 3rd radial hindward. Castro, Paraná, only the type ♀ known. Scarcely an aberration of the following?

C. arthura *Schaus* (as *Craspedia*). Collar bright red; abdomen with subdorsal roseate spots. The bright *arthura*. ochreous wings are striated with roseate, the cell-spots roseate, broadly ringed with black; a broad rosy, purple-mixed band between median and postmedian, somewhat mottled with ochreous at costa and radials, and containing a large blackish spot between the latter and the 2nd median; black postmedian vein-dots on the forewing. Hindwing rounded. "Looks like a *Cambogia*" (SCHAUS).

C. stella *Btlr.* (= *nubicolor* *Th.-Mieg*, *gosina* *Schaus*) (14 f). A rather small and narrow-winged species, *stella*. in coloration and markings more *Scopula*-like than the rest, although the white cell-spot of the hindwing betrays its affinities. Widely distributed (Guianas and Ecuador to S. Brazil) and not specially variable.

C. semirosea *Btlr.* (12 e). Easily known in its typical form by the rosy or flesh-coloured tinge of the *semirosea*. median area of both wings. It is, however, like so many Chilean Geometridae, decidedly variable and the forms which lack this differentiation of the colour of the median area resemble somewhat larger and somewhat less narrow-winged *stella* (14 f). — ab. **notigera** *Btlr.* (12 e) is a development of the more unicolorous forms, *notigera*. characterized by the presence of (somewhat variable) maculation in the distal area, after the manner of *nanaria* (12 f) or of the 2nd brood of some Palearctic *Cosymbia*. Confined to Chili.

C. umbrata *Btlr.* (12 f). Much more irrorated and clouded than the preceding, resembling *nanaria umbrata*. but larger, the postmedian line accentuated by blackish teeth on the veins. Chili.

C. nanaria *Walk.* (= *nanularia* *H.-Sch.*) (12 f), described by WALKER from Jamaica, subsequently by *nanaria*. HERRICH-SCHAEFFER from Cuba, is the most widely distributed species of the group and not likely to be mistaken for any other. What I consider to be the name-typical form belongs to the Greater Antilles and perhaps the Bahamas and Dominica. The series which I have seen from the last-named island shows a preponderance of more brownish- or red-brownish-tinged specimens, but I am not satisfied that it is really a separable race. — **serrulata** *Pack.* (= *obscura* *Druce*) (14 g), the type of a probably superfluous genus *Euephyra*, may perhaps *serrulata*. prove also to be untenable racially. It is, however, on the whole a coarser, more variegated insect, on account of the stronger suffusion and maculation; median shade often very heavy, separated from the postmedian by a conspicuously pale stripe; postmedian generally, but not quite invariably, strengthened by black vein-dots, but not with the dentate effect observable in *umbrata*. Founded on Texan material and now known to be fairly common in the southern United States (to Kansas and California) and Central America and extending, with individual rather than racial variation, right away through South America to Buenos Aires. From the west of that continent I have seen it only from Lima and district, probably introduced, and in any case it is not to be expected from the mountains.

C. subsimilis *Warr.*, a single, faded ♀ from Paramba, W. Ecuador, seems to differ from *coecaria* (12 f) *subsimilis*. only in having the postmedian line of the forewing curved inward anteriorly (as in *serrulata*) and the costa not darkened. It might conceivably be a large, unusually weakly marked aberration of *serrulata*.

C. coecaria *H.-Sch.* (= *conspicillaria* *Druce* nec *Snell.*, *bilinearis* *Schaus*) (12 f). Easily known by the *coecaria*. tone, the firm lines (with the antemedian straight except close to costa, the postmedian straight in anterior half) and sometimes a slight darkening of the costal margin of the forewing. HERRICH-SCHAEFFER's type was from Venezuela, SCHAUS's from Mexico. Nicaragua, Costa Rica, Ecuador and Peru are further localities.

C. acutaria *Walk.* (12 f). Colour nearly as in *coecaria*, hindwing generally more irrorated with grey, *acutaria*. markings weak, the lines punctiform or dentate, median shade occasionally strong. Very distinct in the strongly darkened costal margin of the forewing. Described from Venezuela, distributed in Colombia, Peru, Bolivia and S. E. Brazil.

C. (?) impudens *Warr.* (12 f), from Gardner Island (Galapagos), looks a good deal like a rather brown, *impudens*. not very strongly marked *nanaria*, with irregularly W-shaped antemedian, but the palpus (or particularly its 2nd joint) is longer and its taxonomic position somewhat uncertain. WARREN called it a *Perixeria* (which is an Indo-Australian section of *Anisodes*).

16. Genus: **Anisodes** Guen.

(See Vol. 16. p. 54).

A very widely distributed genus (or group of genera) in almost all parts of the world excepting the Holarctic Region, Chili, Patagonia and a few of the islands of the Pacific, distinguished from *Cosymbia* by the elongate (sometimes extremely elongate) palps, with long terminal joint, particularly in the ♀. In South America it is very numerous and deserves much closer attention than it has yet received. It is divisible into sections according to the armature of the ♂ hindtibia, but each of the principal sections comprises species in which the 1st median (on both wings) is remote at its origin from the 3rd radial and others in which it is closely approximated thereto; it is quite possible that this character may really be more fundamental than the other. The type of the genus, *urcearia* Guen., has the 1st median approximated, the ♂ hindtibia 2-spurred.

A. ♂ hindtibia with 3 spurs; 1st median vein remote.

- gigantula*. **A. gigantula** Warr. (*eoraria* Oberth.) (12 g). Nearly always larger than the two following, which are the only known species with which it could be confused. The rosy markings, including the large patch on the abdomen, are well developed and brightly coloured; in the markings I can find no absolutely constant distinction. Carabaya, S. E. Peru (loc. typ.) and Bolivia. — **cratoscia** *subsp. nov.* On an average not quite so large as typical *gigantula*; grey irroration stronger, giving the wings a duller ground-tone; markings also much duller, the median and postmedian slightly more curved or less oblique anteriorly, at least on the forewing. Orosi, Costa Rica, 1200 m (A. H. FASSL), only ♀♀ yet known, the status not quite certain. Type in my collection.
- portenta*. **A. portentata** *sp. n.* (12 g) is very close to the preceding, but can scarcely be a form of it; at least I have seen no specimen which I could not definitely separate there from by coloration and aspect. I formerly placed it provisionally as a large, broader-banded race of *annularis*, but it seems too different. Attains the size of the smallest *gigantula*; the colouring is noticeably less bright; median shade on forewing nearly always well beyond the cell-spot (in *gigantula* commonly close beyond it, but unfortunately variable); the postmedian line, which is as far from the termen as in *gigantula*, is succeeded by more or less strong subterminal maculation as in *annularis*. Dorsal spot of abdomen sometimes obsolete. Carabaya: La Oroya and Santo Domingo, together with *gigantula*; type ♂ from La Oroya, in the Tring Museum. The lines on the underside incline to be more slender than in *g. gigantula*, but this also applies to most *cratoscia*; all 3 forms, however, vary in this.
- annularis*. **A. annularis** Feld. (12 h). Considerably smaller than *gigantula*, the ground-colour perhaps lighter, the irroration and lines duller, suggesting a slight admixture of grey; lines comparatively slender, the postmedian somewhat more distally placed; some subterminal maculation which is very rarely manifest in *gigantula*. Brazil (Rio district and further south), rather rare.
- rhodostigma*. **A. rhodostigma** Warr. (12 g). Again smaller, of a deeper colour, the postmedian line slender or obsolescent, but marked with strong dots at the veins. Range as that of *g. gigantula*, the type from Chulumani.
- acomposthena*. **A. acomposthena**.
- aquila*. **A. aquila** Schaus (12 g). Somewhat similar in coloration to the preceding group or with brighter ground-colour, very distinct in the firm, straightish postmedian line, edged distally with some dark shading, the absence of the median shade and presence of subterminal vein-dots, etc. Costa Rica: Poas, only the type ♀ known.
- conferta*. **A. conferta** Warr. (12 h). Characterized by the irregular dark-grey irroration, broadly yellow subterminal maculation and presence of yellow blotches in other parts of the wing. Only known from Jamaica.
- fastidiosa*. **A. fastidiosa** Dogn. (12 i). On the whole very constant, the cell-dots small, though that of the hindwing is minutely pale-centred, the median line finely dentate, the others dissolved into rows of strong dots; the subterminal (irregular) and the terminal series interneural. Ecuador (type) to Carabaya.
- griseomixta*. **A. griseomixta** Warr. (12 i). Another tolerably constant species, small, heavily marked, the ground-colour pale yellow, with some ochreous suffusion, the markings partly reddish, partly grey. Carabaya. — **immixta** *subsp. nov.* (14 d), determined by SCHAU'S as "*atrimaculata*". seems to be a larger form of *griseomixta*, the markings less thick and without the reddish admixture, the cell-mark of the hindwing slightly more oval (in all the *griseomixta* known to me almost circular). Sitio, Costa Rica, type ♀ in the Tring Museum.
- parciscripta*. **A. parciscripta** Warr. (12 i), only known from 3 ♀♀, has the 2nd joint of the palpus long-scaled (almost hairy) beneath, the 3rd joint short for an *Anisodes*, and is probably wrongly placed here; but in the absence of the ♂ I can suggest no better position. Agualani, Carabaya, at 9000 feet.

A. punctulosa Warr. (12 i). Larger than most of the adjacent species, the shape characteristic; sub-terminal maculation strong in the type (placed about as in *griseomixta*, etc.), weaker in most examples; the (slightly oval) cell-marks are pale-centred in the type. Underside strongly marked, forewing clouded in and before the cell. — ab. **atristigma** nov. has the cell-marks solidly deep-black. 2 ♂♂ with the type from Chulumani, Bolivia. The name-typical form also occurs at Santo Domingo, S. E. Peru. — f. (? subsp.) **subcolorata** nov. (12 i) is more warmly coloured (light pinkish cinnamon) and more weakly marked and may possibly — as the distal margin of the hindwing seems to be a trifle more rounded — represent a different species; the dark suffusions beneath are, in some examples, more tinged with vinaceous than in true *punctulosa*. Founded on 3 ♂♂ from La Oroya and 3 from Charaplaya (Bolivia); as constant in these localities as is *punctulosa* in the others.

A. antennaria E. D. Jones (12 f) is the S. E. Brazilian representative of *punctulosa* or perhaps of *spatara* as regards shape and the general scheme of the markings. It is somewhat variable in colour and in the strength of the markings, less irrorated, underside weaker-marked, without a definite postmedian band. Wings slightly more elongate, with distal margins still straighter. Type ♂ from Castro, Paraná, other specimens subsequently received from Santa Catharina. The ♂ antennal pectinations, though long, do not surpass those of the allies.

A. spatara Dogn., founded on a single ♂ from Loja and not yet matched exactly, is said to be very near *raspata* (13 e) but a little larger and more robust, the distal margins less deeply dentate. According to some hasty notes which I made when I saw the type, it must be quite similar to *subcolorata* (12 i) but smoother-looking, the median shade still weaker, subterminal shades probably wanting. DOGNIN says that the cell-spots of the underside are pupilled with "paille rose", which is not the case with *subcolorata*, though indicated in *antennaria*. Hindlegs lost in the type, but it almost certainly belongs to the present section.

A. concinnipicta Prout (12 f). This, too, must be near to *spatara*, the rosy irroration less noticeable (extremely fine and slight), the cell-rings very small (especially on the forewing), rose-coloured, on the upperside pupilled, on the underside not appreciably so. Both wings are elongate, but the apex of the forewing and the termen of the hindwing are slightly better rounded than in *punctulosa*, the underside with less band-like shading accompanying the postmedian dots. Colombia: Sierra del Libane, 6000 feet.

A. sordida Dogn. (12 e). A variable species, marked alike on both surfaces, only with the colouring a little paler beneath, especially on the hindwing. The ground-colour (rather light brown with a tinge of ochre and with some very fine grey and rosy irroration) does not vary much, the 3 named forms being differentiated by the markings. These are simplest in the type form, here figured. — ab. **nigridisca** Dogn. has the cell-spots larger and blacker, on the upperside conserving some white scales in the centre, on the underside entirely black. — ab. **taminata** Dogn. (12 e) has blackish patches in the distal area at the radials and between the 1st median and the hindmargin. A transition, which can be included in *taminata*, has these patches less extremely developed, the posterior one broken into a small pair at the fold and an isolated one between the median veins. All the forms occur together at Huancabamba and probably at Oxapampa, the type locality.

A. iners Prout (14 a) is the smallest species of the 3-spurred group yet known. Areole long, the 5th subcostal arising before its extremity; pale cream-buff, slightly darker on the forewing costally, the cell-dots black, not ocellated, that of the hindwing larger, somewhat elongate, the median shade thick on the fore-, faint on the hindwing. Underside with the ground-colour still paler, but with a great part of the forewing (proximally and costally) flushed with pink. La Oroya, Rio Inambari, only the type known.

A. oöthesia Prout (12 c). Termen of forewing waved, of hindwing markedly crenulate, with the teeth at the 1st and (especially) the 3rd radial strong. The lines not very strong, but usually more or less thickened at the costa of the forewing; characteristic are the whitish tone and the strong double subterminal shade, enclosing a row of irregular white spots; terminal line fine, but scarcely interrupted, thickening into dots between the veins; cell-mark somewhat elongate, black on the forewing, minutely pale-centred on the hindwing. Huancabamba, Cerro de Pasco, E. Peru.

A. poliotaria Dyar. "Expanse 28 mm." Pale grey with dark irroration; lines slender, denticulate, blackish, antemedian angled subcostally, median oblique, postmedian less strong, with vein-dots at the ends of the teeth, terminal line slender, broken by white interneural dots; cell-dots small, white, on the hindwing ringed with black. Tehuacan, Mexico.

A. pomidiscata Warr. (12 c) is doubtfully distinct from *imparistigma*, as it seems scarcely to differ except in the cell-spots (particularly that of the hindwing) and these are well known to be variable in the genus. Founded on 2 ♂♂ from Santo Domingo, Carabaya.

A. imparistigma Warr. (12 c) was named from the unequal size and coloration of the cell-spots: that of the forewing a cinnamon ring with pale centre, that of the hindwing larger and black. Founded on a ♂ from Santo Domingo; both it and (ab.?) *pomidiscata* occur also at La Oroya.

- sypharioides.* **A. sypharioides** Prout (12 h). Differs from the common *sypharia* Guen. (13 g), with which formerly it was sometimes confused, not only in the leg-structure but also in that the vertex is mainly concolorous with the wings (only its extreme anterior edge somewhat whitened; in *sypharia* wholly white), the underside much less unicolorous, etc. Both wings beneath with the cell-marks and the markings beyond present, the terminal dots prolonged into dashes. Santo Domingo, Carabaya, the type; and extending through E. Peru to Loja.
- maculidiscata.* **A. maculidiscata** Warr. (12 h). Rather a dull-coloured species, recognizable at once by the very large cell-spot of the hindwing, which extends in front of the subcostal vein and behind the median. Underside much paler, in large part whitish, the hindwing very weakly marked. This is another of OCKENDEN'S innumerable Santo Domingo discoveries, but occurs, also elsewhere in E. Peru.
- mezclata.* **A. mezclata** Dogn. (13 a). Variable in size and in the strength (and even the tone) of the dark spots and suffusions; yet easy to recognize by the essential markings. Several principal forms may be recognized, but I do not think any of them can be separate species, as occasional intergradations occur. Typical *mezclata*, described from Loja but known also from E. Peru (Cushi, Pozuzo, Oconeque), is large (41—44 mm), the ground-colour light brownish, the dark midterminal and tornal spots strong. — ab. **metrioepela** nov., which occurs with it at Cushi (loc. typ.) and Pozuzo, has about the same size and ground-colour, the dark blotches wanting or very faint; a dentate line which accompanies the postmedian distally (particularly noticeable on the hindwing beneath) is generally more conspicuous and regular than in the other forms; subterminal spots of forewing above also fairly regular. — ab. **decorata** Warr., a ♂ from Santo Domingo, Carabaya, expanding 40 mm, is nearest to *metrioepela*, but makes a different impression in the somewhat cleaner ground-colour, which in the narrow pale area inside the postmedian contrasts sharply with the dark median shade, while the area between this latter and the antemedian is more irrorated and suffused than in most *mezclata* ♂♂ and the small cell-rings are not conspicuous. — ab. **perdecorata** nov. (13 a) is a further development from *decorata*, smaller (33—36 mm), the ground-colour at least as whitish, the suffusions and outer spots in part red-grey (instead of the dark purple-grey of *mezclata*), the latter less solid, usually broken by remnants of the pale subterminal line, the one at the anal angle of the hindwing undeveloped. In this form, too, the anterior two subterminal spots of the forewing are confluent, and nearly always confluent with a terminal one, so that a noticeable, pale apical patch is well formed. On the whole, the median shade is perhaps nearer to the cell-spot, widening the whitish area between it and the postmedian. Carabaya, 3100—6000 feet: La Oroya (type in the Tring Museum), Tinguri and Santo Domingo, a homogeneous series embracing both sexes. — ab. (?) **nigrinotata** nov. 38 mm; median line weak; cell-rings black, somewhat enlarged, with minute pale pupils; midterminal spots black, slightly interrupted (especially on the forewing) by the subterminal, tornal ones wanting. Chachapoyas, Amazonas, Peru (M. DE MATHAN), 1 ♂ in the British Museum, taken together with a rather small (40 mm) and not quite fresh, but nearly typical *mezclata*, so that I can see no grounds at present for calling it a race, unless it be that both specimens share, more or less, the enlargement of the cell-spot of the forewing and perhaps a weakening of the median line. — A single ♀ from Bonda, Colombia, rather small, is perhaps nearer to *decorata* than to either of the other forms, but nothing useful can yet be said about it.
- spiculifer.* **A. spiculifer** Warr. (14 a). Possibly related to the preceding; unmistakable in the fewness and sharpness of the markings, especially the longitudinal mark, which WARREN likens to a spear-head. On the underside the latter mark is less strong, the postmedian more definitely double. Cushi, only the type known.
- scintillans.* **A. scintillans** Warr. (= *plenifasciata* Dogn.) (13 a). Hindfemur of the ♂ generally with the proximal third of the tibia long-haired; shorter hair sometimes continuing nearly to the proximal spur. Rather brightly coloured, especially perhaps in the typical Carabaya form, where the copious irroration and network on the pale yellow ground are predominantly ochraceous or orange. The thick (on the hindwing straight) median shade is always conspicuous and on the forewing an oblique mark along the radial fold is at least indicated. S. E. Peru to Costa Rica. DOGNIN described his *plenifasciata* as an aberration, but it is of the same well-banded form as WARREN'S. — ab. **maculata** nov. has the cell-spots strengthened, much blackened, and some black subterminal marks, subcostal (single), radial (double) and submedian (indefinitely double). Popayan, 1 ♂, together with 3 typical (except in their slightly more brownish tone) and 1 intermediate, all in the Tring Museum.
- sitas.* **A. sitas** Schaus, from Juan Vinas, Tuis and Mount Poas, perhaps embraces some rather variant forms, but a Poas ♂ in the Tring Museum, determined by its author, is clearly a somewhat paler and more weakly irrorated form of *scintillans* and it fits so well to the description that I fear the name must be treated as sub-specific only. Orosi specimens even share the bright colour of *scintillans*.
- connexa.* **A. connexa** Warr. (13 a). Also closely similar to *scintillans* in colour and markings, but the hindleg evidently simpler (nearly all the hindlegs unfortunately lost or damaged!); both wings have the costa a little more elongate, the teeth of the hindwing a little stronger; markings more oblique, subterminal shades complete or almost. Cushi and 1 ♂ from Pozuzo. In the type form, which we figure, the dark markings are broad and

intense. — ab. **radiata** Warr. Median line and oblique streak narrowed, at least as slender as in *scintillans radiata*, and no darker, if as dark; subterminal shades also somewhat weakened. WARREN named this form and *connexa* simultaneously and called the species *radiata*; but since that name is preoccupied in *Anisodes* I have reversed them.

A. suberea Dogn., only known from the type, a ♂ from Loja, has the termen of the forewing rather *suberea*, more oblique than usual, its apex minutely produced, hindwing with anal angle prominent; its brown ground-colour is not so red or cinnamon as in most of the deeply coloured *Anisodes*, median line fairly thick, of a different shade of brown, other markings not very distinct, mainly punctiform. “29 mm” (say 33—34).

A. bipartita Warr. (13 a). In shape near *connexa*, hindwing rather less strongly toothed. Somewhat *bipartita*, smaller; abundantly distinct in its violet-grey colour, more distally placed median shade of the forewing, etc. Popayan (loc. typ.) to E. Bolivia. — **montana** subsp. nov. Decidedly larger (length of a forewing in both *montana*, sexes 17—18 mm) and of a slightly darker grey, the hindwing beneath more whitish than the forewing. Oconeque, Carabaya, 7000 feet, probably a high-altitude form. Very constant except that — one pretty aberration has all the markings, especially those of the distal area, much intensified, ab. **maculata** nov. *maculata*.

A. major Dogn. (13 b). Almost exactly like *aequalipunctata* except in its much larger size and slightly *major*, “more rounded” wings (termen of forewing perhaps a trifle more convex, hindwing appreciably less narrow). At high altitudes in Colombia (3000 to 3800 m). I was formerly inclined, like DOGNIN, to treat it as a high-altitude race (compare the preceding), but as both are well represented at Cushi, 1900 m, without transitions, I now suppose it to be a species.

A. aequalipunctata Dogn. (14 b). Not a very striking species, but fairly easy to recognize by its elongate wings, double median shade (or line and shade) and strongly marked underside, with the proximal shades of the subterminal on the forewing unusually accentuated. Loja (type) and E. Peru. — **latifasciata** Warr. *latifasciata*, (13 b), though a very rare form, only known in a few specimens, was erected as a species and thus unfortunately becomes the name for the race of *aequalipunctata* which has been received in large numbers from high altitudes in Carabaya — Oconeque (loc. typ.), 7000 feet, and Agualani, 9000 feet. — ab. **pallescens** nov., which *pallescens*, name I would use for the entire race if *latifasciata* should turn out to be a separate species, is the prevailing form in the last-named localities and only differs materially from *aequalipunctata* in the white or whitish, instead of light-brown ground-colour. It should be added that the *latifasciata* form is also known in the brown race (Cushi, 1; Huancabamba, Cerro de Pasco, 1) besides an occasional “ab. *maculata*” (nom. coll.).

A. parcisquamata Prout (13 b). Taking into account the variability of *aequalipunctata*, I no longer *parcisquamata*, feel certain that this may not be a further aberration of it. Founded on a single ♂ from Huancabamba, where that species seems especially variable, it chiefly differs in its far more weakly marked upperside, on which the only conspicuous markings are the intensified black cell-spots (their white pupils more nearly suppressed), a median mark on innermargin of hindwing and fragments of the subterminal, especially the twin spots at the radials. The type, from Huancabamba, Cerro de Pasco, is unique.

A. rubrannulata Prout (13 b). Also close to *aequalipunctata* in shape, colour and markings. Abdomen *rubrannulata*, without the dorsal spots. Cell-ring of forewing red, scarcely at all mixed with black scales, that of hindwing wholly black, without the white pupil; median shade not geminate, subterminal shade perhaps less irregular. Markings of underside rosy. San Antonio, W. Colombia, the type ♂ unique.

A. plenistigma Warr., founded on a worn ♂ from Chiriqui, looks a good deal like a pale *major* (13 b). *plenistigma*, but has the cell-spots larger, especially on the hindwing, mixed black and brown, more oval (or on the hindwing slightly reniform), the median shade single and not broad, the postmedian less distally placed than in *major*.

A. lancearia Feld. (13 b) in a measure reverts to the scheme of markings of *connexa*, but is longer-winged, paler and with numerous differences which can be seen from the figures. Bogotá (the type) to E. Bolivia. Generally not variable. — ab. **nigrinotata** Dogn. is a striking form with the cell-spots more broadly *nigrinotata*, ringed with black and with composite black subterminal spots between the radials, on the forewing also a small oblique one close to the apex. Singly at San Antonio (Cali), Oxapampa and Cushi.

A. dulcicola Dogn. “Wings less rounded than in *radiata (connexa)*, of a lighter yellow, the discal spots *dulcicola*, larger, reddish with white centre, that of the hindwing a little larger than that of the forewing. 38 mm.” A ♂ from Paramo del Quindiu; erected as an aberration. 2 ♂♂ in the Tring Museum from Cushi, which may belong here, resemble *scintillans* (13 a) but have a noticeable tooth at the 3rd radial of the hindwing, the median line and longitudinal streak strong on both wings, the cell-spots quite distinctive.

A. heterostigma Dogn., also founded on a single ♂ from the Quindiu district (3000 m), is said to be *heterostigma*, near *rufistigma* (13 b) but with the markings rosy violaceous on a pale fleshy-tinged ground, the cell-spots black, that of the hindwing (which in the larger) pupilled on the upperside with white, the median line straight, etc. The expanse is given as 33 mm.

- rufistigma*. **A. rufistigma** Warr. (13 b). A small species, with about the shape of the two preceding. In the type, from Santo Domingo, the cell-rings are rather orange-cinnamon than (as described by WARREN) "red", the lines greyish ochreous; in the commoner (?) form from La Oroya, which we figure, the markings are sharper and darker, the cell-rings mixed with blackish, though the lens reveals a purple-reddish element.
- endospila*. **A. endospila** Prout (13 c) is larger and paler, the produced apex of the forewing and the tail of the hindwing rather more strongly developed, the cell-marks more long-oval, the median line thickened and blackened at the abdominal margin of the hindwing. Carabaya, from 6500 to 9000 feet.
- parvidens*. **A. parvidens** Warr. (13 c). Also similar to *rufistigma*, but with the tooth of the hindwing shorter, the tone browner (less yellowish), the cell-mark of the forewing very small, generally weak, that of the hindwing less small, dark-ringed, occasionally blackened throughout. La Oroya and Santo Domingo.
- gracililinea*. **A. gracililinea** Warr. (13 c). Considerably larger than *parvidens*, apex of forewing acute, termen strongly oblique and straightish, colour somewhat different (with faint fleshy tinge), markings a little more definite, cell-mark of forewing a small black point. Cushi.
- atrimacula*. **A. atrimacula** Dogn. Possibly a form of the preceding, though the wings look scarcely so narrow. Tone somewhat more reddish (or red-grey), cell-spots larger and black, some well developed spots on the proximal side of the subterminal, especially a subcostal, two radial and three posterior. Founded on specimens from San Antonio, near Cali (Colombia) and Loja, known also from Cushi.
- B. ♂ hindtibia with 3 spurs; 1st median (at least of hindwing) arising close to 3rd radial.
- hieroglyphica*. **A. hieroglyphica** Warr. (13 c). Recognizable at a glance by the intricate pattern of fuscous or blackish markings and apparently not variable. E. Peru, the type from Santo Domingo, Carabaya.
- spissata*. **A. spissata** Warr. (13 c). Evidently related to the *nebuligera* group in sect. D, but has to be placed here for analytical convenience, as the ♂ hindtibia is 3-spurred. Hindwing with 3rd radial connate or even (very shortly) stalked. Confusingly similar to the ♀♀ of *spadix*: the ♂♂ are very easy to distinguish by the hindleg structure, for whereas *spadix* has the femur and tibia densely clothed with coarse reddish hair and the hindwing beneath almost as rosy as the forewing, *spissata* has the latter largely pale buff, though with rosy distal cloudings, the hindleg glabrous, though with a spreading pencil of fine, silky, light-buff hair from the thorax at the base of the coxa. Guianas and Pará, the type from Rio Demerara.
- spadix*. **A. spadix** Prout (13 c). Thoracic pencil longer, stronger, distally reddish. Proximal spur of ♂ hindtibia embedded in the specialized hair (its distal end, on close attention, can often be detected), the shorter of the terminal spurs apparently ill-developed. On an average larger than *spissata*, colour more reddish, at least in the ♂; markings apparently indistinguishable. Upper Amazons, described from Fonteboa. A race (?) from Taperinha, near Santarem (ZERNY coll.) unfortunately had to be returned before I had made a sufficient description of it.
- timotheus*. **A. timotheus** Schaus, known only in the ♀, is so close to *bipunctata* (13 d) that it may reasonably be conjectured that the ♂ structure will prove to be nearly the same. Larger, paler, more buff than reddish, the grey markings consequently assuming a more olivaceous tone; postmedian line of forewing with an additional tooth at the 1st radial, which is very rarely noticeable in *bipunctata*; white cell-dot of hindwing not or scarcely elongate. Costa Rica: Juan Vinas, Tuis and Guapilas.
- bipunctata*. **A. bipunctata** Warr. (13 d). Somewhat variable in colour, warmer than *timotheus* and (especially) than the species that follow in this group; more variegated than *spissata*, generally smaller, with well-developed black subterminal spots between the radials, forewing beneath less rosy. Thoracic pencil at base of hindcoxa small. Santo Domingo and La Oroya, fairly numerous.
- zeuctospila*. **A. zeuctospila** Prout (13 d) differs from *bipunctata* in its rounder wings, pale colour, less angled (at 1st median) lines of the forewing, larger and more confluent black mark at the radials of the forewing and strong black circumscription of the cell-mark of the hindwing. Hindtibia of ♂ with rough projecting scaling from base to proximal spur. Fonteboa. — ab. (? subsp.) **spuria** nov. has the lines a little finer and more strongly expressed, the white cell-mark of the hindwing, as in *bipunctata*, elongate and only very narrowly ringed with black; costal edge of forewing more darkened. Suapure, Venezuela, a ♀ in the Tring Museum.
- stramineata*. **A. stramineata** Warr., founded on a somewhat defective ♀, probably belongs here, though it is possible the ♂ hindtibia will be found to have only 2 spurs. More densely irrorated than *zeuctospila*, the irroration somewhat greyer, producing a duller tinge; costal margin of forewing a little yellower than the rest, not at all darkened; median shade of forewing angled in the middle, nearly as in *bipunctata*, posteriorly more strongly curved inward; postmedian shaped more as in *zeuctospila*; no black blotches; cell-spots of hindwing moderate, white, with slender black circumscription. Paramba, W. Ecuador.

A. calama *Prout* (14 b). Irroration partly red-brown, partly blackish; median shade thicker and more zigzag than in the preceding members of the group, at least as far from cell-mark as from postmedian; cell-mark of hindwing moderate, somewhat elongate, white with black circumscription. Underside of forewing with the markings outside the cell-spot strong, dark greyish vinaceous; of hindwing unmarked except at distal margin. Calama, Rio Madeira, only the type known. *calama*.

A. difficilis *Prout* is larger (28—30 mm), the subterminal area of the hindwing almost as strongly marked as that of the forewing, its antemedian line perhaps better developed. Otherwise I can find no distinction except a structural one: hindleg of ♂ with the distal half of the femur and proximal half of the tibia fringed with long coarse hair-scales. Upper Amazon and Rio Chuchurras (Palcaza, E. Peru). *difficilis*.

A. subviolescens *Warr.* (13 d). Somewhat similar to *zeuctospila* ab. *spuria*; forewing less rounded at apex (distal margin anteriorly more oblique), only the extreme costal edge darkened, the subterminal dark spot between the radials weaker, additional spots posteriorly (almost as well developed); rosy cloudings on the underside more strongly developed, especially in the distal area and on the hindwing; moreover the ground-colour is slightly more fleshy-tinged. French Guiana (type) and the Upper Amazons. *subviolescens*.

C. ♂ hindtibia with 2 spurs; 1st median vein of hindwing remote.

A. warreni *Dogn.* (14 b). Distinguishable by its large size, the partial rosy suffusion on the pale ground and the punctiform markings, which latter cause DOGNIN to liken it to an overgrown *fastidiosa*: its ♂ lacks, however, the proximal spur of the hindtibia, its postmedian series of dots is more remote from the cell-dot, etc. In the example before me, the cell-dot is present on both wings, though very small. Monte Tolima (type) and Upper Rio Negro, Colombia. *warreni*.

A. prunelliaria *H.-Sch.* (13 d). Variable in size (moderate to large) but fairly constant in the pattern of copious spots and dots on a light, but generally bright, ground-colour and in the formation of the cell-spots; rosy admixture generally conspicuous at least at the base and on the median shade. Abdomen pale, black-dotted dorsally on the anterior segments only. Venezuela (type) and distributed from Costa Rica to Bolivia. *prunelliaria*.

A. viator *Prout* (13 d). Smaller, more orange-coloured, forewing slightly elongate anteriorly, median shade stronger, more angular, dorsal dots of abdomen weak. Columbia to Bolivia, the type series from Carabaya. *viator*.

A. stricticata *Warr.* Again smaller (27 mm), less bright, said to recall *nigropustulata* except in colour. Both wings crenulate, slightly projecting at 3rd radial. Greyish fawn, with a faint reddish tinge in parts; first 3 lines punctiform, the antemedian with additional dots on the folds, costa and hindmargin, the median accompanied by a faint reddish shade; subterminal and terminal spots much as in *psilomera* (13 e); cell-dots white, that of forewing in a small red ring, that of hindwing with rather larger encirclement, mixed black and red. Underside rosy, with hindwing paler. Abdomen on first two segments with black marks. Orizaba, 1 ♂. *stricticata*.

A. temperata *sp. n.* (13 d). Hitherto misidentified as *stricticata*. 30 mm. More orange-reddish (nearest “sayal-brown” of RIDGWAY). Abdomen not spotted. Markings much weaker, with no red element, the subterminals quite small and inconspicuous, the median not punctiform, but with slight dashes on the veins; cell-ring of hindwing little enlarged; underside scarcely rosy. Hindleg not tufted. Palpus with 3rd joint moderately long. San Antonio, W. Colombia, 2 ♂♂ in my collection. *temperata*.

A. lateritiaria *H.-Sch.* (13 e). There is some difficulty in deciding which of several closely similar forms is the true *lateritiaria* or how many of them belong to it. It was a ♀ from Venezuela and his figure was formerly mistaken by WARREN for a *Semaepopus* (perhaps a form of *caecaria* *Hbn.*) and made the type of a genus *Heterephyra*; it is certain, however, that it represents one of the group now to be considered. The species which we figure, though I have not yet seen it from Venezuela, seems to meet the requirements accurately. The ♂ has the hindfemur throughout fringed with long pale hair. Panama to Bolivia. *lateritiaria*.

A. psilomera *sp. n.* (13 e) looks closely like a much smaller, slightly less reddish *lateritiaria*, but has the hindfemur smoothly scaled; some of the black markings are stronger, notably an additional black antemedian dot in the cell of the forewing (considerably more distal than the 3 normal vein-dots). Abdomen with black dorsal dots on the first 2 or 3 segments. S. E. Peru, the type from Agualani, 9000 feet, in the Tring Museum. *psilomera*.

A. violens *sp. n.* (13 e). At least as large as *lateritiaria*, the ♀ larger (47 mm); colour as reddish, or even redder. Black markings, including the abdominal spots, as strong as in *psilomera*, the postmedian dots sometimes connected by a weak line. 3rd joint of ♂ palpus shorter than in *lateritiaria*, somewhat deflexed. Forewing of ♂ slightly narrower than in either of the allies; hindfemur fringed, especially in its distal part. S. E. Peru: La Oroya (loc. typ.) and Agualani; type in the Tring Museum. *violens*.

A. ptochopoea *sp. n.* (13 e). An inconspicuous species which, as far as I can make out, has hitherto escaped detection. Expanse 33—39 mm. Hindleg without tufts or fringes of hair. Palpus in both sexes with *ptochopoea*.

3rd joint long. Forewing with termen slightly more curved than in *lateritaria* (perhaps as in *psilomera*), termen of hindwing with the teeth somewhat more noticeable (but not as strong as in *dognini* and *raspata*). Body and wings lack the red tint of the 3 preceding species; abdomen without black dorsal spots. Forewing with the white cell-dot only very slenderly ringed with black or grey; markings placed about as in *lateritaria* but weak, especially the subterminal spots. Hindwing with the cell-spot generally as large as in *lateritaria*, similarly black, with minute white pupil; in a ♂-ab. from Rio the pupil is a little larger, the black ring reduced so as to leave space for an outer ring of white, slightly irrorated with black. Paraguay: Sapucay (type ♂ in Mus. Tring); Brazil. Rio district to Santa Catharina; ? Montevideo, a ♀ with termen of hindwing somewhat less dentate, its cell-spot somewhat less large. — **gaudebunda** *subsp. nov.*, from E. Peru, is brighter ochreous, generally with somewhat stronger irroration and on an average somewhat smaller. Type ♂ from Agualani, Carabaya, 9500 feet, in the Tring Museum; reaches as far northward as Oxapampa, I think even to Upper Rio Negro, Colombia (1 ♀).

dognini. **A. dognini** *Prout* (= *ruficeps* *Dogn.*, nec *Warr.*). “34 mm.” Ochraceous fleshy grey, the irroration and markings testaceous, as also the costal margin of the forewing; markings much as in the preceding, but with the cell-mark of the hindwing in the type (and in a worn Cushi ♂ before me) composite: white in the centre, finely and weakly dark-ringed, the ring again surrounded by a pale circle and this finely by a black one. Termen of forewing somewhat more oblique than in *ptochopoea*, hindwing as strongly dentate as in *raspata*. Monte Tolima, described as a possible aberration of *magnidiscata* *Warr.* Hindleg glabrous.

raspata. **A. raspata** *Dogn.* (13 e), if I have it correctly determined, is a somewhat longer-winged and duller coloured species, with the median line of the forewing further from the cell-mark, the cell-mark of the hindwing composite, either white or grey. Described from Ecuador; the figured form is from Agualani, S. E. Peru.

seposita. **A. seposita** *Prout* (13 f). Variable in size and in the cell-mark of the hindwing, which is typically moderate, black, generally with (very small) white pupil. Colour reddish, nearly as in *lateritaria* or somewhat more inclining to brown. Vertex of head and shaft of antenna (in contradistinction to the preceding 6 species) white; abdomen dorsally in both sexes becoming suddenly whitish or very pale in its posterior part (nearly one-half). Hindleg of ♂ simple. — ab. **discata** *nov.* Cell-mark of hindwing large (as in *ruficeps*, or occasionally even larger in proportion), composite, white, finely black-ringed. Colombia to Bolivia, the types of both forms from Cushi, E. Peru.

dicycla. **A. dicycla** *sp. n.* (13 f). Much smaller than *seposita* (28—32 mm), termen of forewing not, of hindwing only very feebly crenulate. Colour appreciably different, having somewhat more orange or cinnamon in its composition; abdomen dorsally reddish almost throughout; face in upper part bright red (in *seposita* brownish). Apparently scarcely at all variable, the cell-mark in all the known examples white, enclosing and enclosed by dark rings. Carabaya: Santo Domingo, Tinguri and La Oroya, good series collected by G. OCKENDEN. Type in the Tring Museum, from Tinguri.

globalia. **A. globalia** *Guen.* (= *metaspilata* *Walk.*) (14 a) was described primarily from the ♀, here figured, and the allotype ♂, which was said to be “similar, but having on the underside a rosy, interrupted subterminal line and a cell-dot, the latter hardly noticeable on the forewing, which has a rosy suffusion”. We therefore have not the structural clues afforded by that sex. Both the originals came from “Colombia”, the type of *metaspilata*, also a ♀ and apparently an excellent match, from Venezuela, but the species (or form) awaits re-discovery. It differs from *seposita* in the abdomen, from *ptochopoea* in the reddish colour and white vertex, from both in the weakly marked underside and perhaps less crenulate hindwing.

ordinata. **A. ordinata** *Walk.* (= *complectaria* *Möschl.*) (13 f) agrees approximately with *flavidiscata* in size, shape, formation of the very weak lines and postmedian vein-dots, and in the structure of the palpus; and may well represent it on Jamaica. In both, the hindtibia of the ♂ is smooth-scaled, the femur shortly fringed and the vertex and antennal shaft are not, or scarcely, paler than the body and wings. The ground-colour of *ordinata* is a little less suffused with grey and the cell-marks are nearly always small, grey (on forewing) or black (on hindwing), both with minute white pupil. — ab. **congruaria** *Walk.* has the ocellus of the hindwing reduced to a “small black dot”. — ab. (?) **albipupillata** *Warr.* has the colour and general aspect of *ordinata*, the cell-spot of the forewing almost as large as in *flavidiscata* but not black-ringed, that of the hindwing similar but black-ringed, about the size of the inner circle in *flavidiscata*. The unique type, a ♂, is only labelled “S. America” and, though it is believed to come from Jamaica, may possibly represent a subspecies from some other locality. If the “*sypharia* *Guen.*” of HERRICH-SCHAEFFER and GUNDLACH is the present species, it occurs also on Cuba.

flavidiscata. **A. flavidiscata** *Warr.* (13 f). Easily known by its conspicuous white, black-tinged cell-spots, that of the hindwing containing an inner circle (or semicircle); also by its crenulate margins and rather broad forewing. The type is labelled “Huatuso, Vera Cruz”, but Dr. JORDAN informs me that some of the butterflies received with that labelling belonged to São Paulo; as I have not seen others from Mexico this may be the case here, but it seems to be a widely distributed species. — Costa Rica, Peru, Petropolis.

A. lutosicosta *sp. n.* (13 f). Face reddish, generally more mixed with dark grey than in *ruficeps*; vertex and a great part of antennal shaft suffused with black-grey (in *ruficeps* red). Palpus with 2nd joint roughened above, 3rd joint in both sexes long. Leg structure about as in *ruficeps*. Abdomen becoming pale posteriorly, but not changing colour so abruptly as in *seposita*. Forewing with costal edge narrowly darkened, commonly blackish; cell-mark as in *seposita* and *ruficeps* or smaller, generally weak. Hindwing with the cell-spot about as in typical *seposita*. Costa Rica, the ♀♀ fairly common, the type from Tuis, in the Tring Museum, labelled *metaspilata* by SCHAU; also from Colombia and Ecuador and even Salampioni, Bolivia (1 ♂, damaged, cell-ring of hindwing minute), the last-named perhaps nearer to the following race. — ab. **albiorbata** *nov.* has the cell-spot of the hindwing large (diameter about 1 mm), white, with somewhat suffused grey circumscription. Type in the Tring Museum, from W. Ecuador. — **gnophostephana** *subsp. nov.* Margins slightly less crenulate, face, vertex and antenna blacker. Santa Catharina (F. HOFFMANN): Rio Laeiss, Blumenau, the type ♂; Jaraguá do Sul, a good ♀; both in the Tring Museum. These have the cell-spot of the hindwing large and white, as in ab. *albiorbata*, but this will almost certainly be inconstant; a ♀ from São Paulo, which I refer to the same race, has it as in typical *lutosicosta*. — I suspect that this species is the "*confirmaria* Walk." (MS.) mentioned by DOGNIN in erecting his *raspata*, but I will not employ that name, lest nomenclatural complications should result.

A. ruficeps *Warr.* (13 g). A rather large species and generally fairly constant. Head antenna and upperside of body and wings virtually concolorous. Hindfemur of ♂ fringed with long hair; proximal part of tibia with a similar tuft of hair, tinged with red. — ab. **incerta** *Dogn.* has the black cell-spot of the forewing enlarged, that of the hindwing blackish; both retain the white or whitish central dot. Colombia and Peru; *ruficeps* was described from E. Peru, the aberration from Colombia.

A. sypharia *Guen.* (= *fimbripedata* *Walk.*) (13 g). Smaller than the neighbouring species, wing-margins somewhat smoother, hindleg of ♂ with the femora and tibia strongly long-fringed throughout, the hair of the proximal part of the tibia vinaceous, 3rd joint of palpus in both sexes long. Vertex white in front, reddish brown behind. The type form has the black cell-ring of the hindwing small, but it occasionally becomes moderate (never, so far as I know, large). — ab. **discata** *nov.* has the cell-mark of the hindwing double-ringed, about as in *dicycla*. A very widely distributed species, Mexico to S. Brazil; GUENÉE's type from Cayenne.

A. binocellaria *H.-Sch.* (= *magnidiscata* *Warr.*) (13 g). Under this name we have possibly two or three species mixed, as there seems to be some variation in the strength and extent of the hair-tufts of the ♂ hind-tibia and even in the length of the 3rd joint of the palpus; but the general constancy in shape and markings is so complete that I have not yet been able to make any separation. Much larger than *sypharia*, palpus scarcely so long in proportion, hindleg of ♂ sometimes similarly clothed, but often with the hair of the tibia much reduced on distal part, its proximal tuft rarely vinaceous. Colour brighter, postmedian dots accompanied distally by pale ones (generally conspicuously white), cell-mark of hindwing typically as in *sypharia* ab. *discata*. Venezuela (the type) and Costa Rica to Bolivia (this the type locality of *magnidiscata*). — ab. **incerta** *nov.*, so called by analogy with *ruficeps* ab. *incerta*, is the only variant known to me: cell-spot of hindwing not quite so large, wholly black excepting the small white pupil; that of forewing unchanged. Occurs in Costa Rica with the type, also Chiriqui and may be expected elsewhere.

A. vineotincta *Schaus*, known only in a few ♀♀, is possibly a modification of the preceding, with large white, dark-ringed cell-spot of forewing and strengthened white postmedian and terminal dots. Superficially recalls an overgrown vinous coloured *flavidiscata*. Juan Vinas and San Jose, Costa Rica.

A. nivestrota *Dogn.*, founded on a single ♀ from Lino, Panama, has the face and the fillet (between antennae) white; wings reddish brown, irregularly marked with white patches, on the forewing costal and apical, on the hindwing in the basal and costal half; lines blackish, weak, the postmedian festooned, bent inward about the 2nd median; forewing with 3 large white subterminal dots (in cellules 7, 6 and 3); hindwing with white cell-spot, bordered proximally by a blackish mark. If the irregular white maculation is somewhat variable, a ♂ from Muzo, Colombia, may well be referred here. Its hindfemur is fringed and there is a small tuft at the junction with the tibia.

A. morbosa *Dogn.* Size of *nivestrota* ("33 mm"). Ground-colour formed of a mixture of ochreous and red-brown, head and body above the same; characterized by two large dirty-grey subterminal spots, which are ringed with black and enclose each a black V distally; cell-dots minute, white, black-ringed. Hindleg fringed with long hair. San Antonio, Colombia, 1 ♂.

A. sopater *Schaus* (13 g). I know only the ♀ and cannot be sure of the section to which it should be assigned; it has slightly the aspect of some Old-World "*Pisoraca*", e. g. a more purplish, weakly marked *compacta* *Warr.* or *lyciscaria* ab. *coecaria* *Guen.* Palpus long. Vertex only pale between the antennae; coloration

of upperside otherwise very uniform. Characteristic are the tone of colour and the exceptionally small (though still white-pupilled) cell-spot of the hindwing. Costa Rica.

- subaenescens.* **A. subaenescens** Warr. (13 g). Palpus of ♂ with 3rd joint less extreme than in many *Anisodes*, hindfemur and tibia very heavily fringed and tufted. The type form, with its bright orange and red shades largely obscured by dark-grey suffusions, the veins notably dark-grey, is by no means the commonest and the colour varies to almost clear orange with rufous irroration; costal edge of forewing narrowly darkened. The white cell-dots seldom vary, but a very few specimens have them enlarged, notably on the hindwing, where the diameter approaches 1 mm. E. Peru, especially Carabaya, up to 6000 feet. — f. **anicma** nov. (13 h), with similar shape and structure, is larger (36—37 mm). of a duller colour (with no trace of orange admixture), the blackish shading round the cell-dots at times stronger. Oconeque, Carabaya, 7000 feet, 6 ♂♂, ♀ in the Tring Museum.
- acampes.* **A. acampes** sp. n. (13 h). Darker, yet with the fillet between the antennae pale buff, the ♂ tibial tufts wanting, the femur only weakly fringed, the median shade much less bent. I can find no other constant difference, yet these speak for a separate species. Carabaya: Oconeque, type ♂ and another; Limbani, 9500 feet, 1 ♀; all in the Tring Museum.
- dilogia.* **A. dilogia** sp. n. (13 h). In shape and structure close to *acampes*, hindfemur with still less hair, 3rd joint of palpus a trifle longer. Colour as in the brightest and most variegated *subaenescens*, vertex and antenna brighter buff. Cell-spot of hindwing larger; median shade touching or crossing the cell-mark; postmedian line firmer, on the forewing straighter (very noticeable on the underside anteriorly). E. Peru: Cushi, 2 ♂♂, including the type; Huancabamba, Cerro de Pasco, 2 ♂♂; all in the Tring Museum.
- granillosa.* **A. granillosa** Dogn. (13 h). The species which we figure (on a ♂ from Santo Domingo, Carabaya) has, I understand, been compared by WARREN with DOGNIN's type, but does not agree very perfectly with the description. Its hindfemur is fringed and there is a moderately strong tuft (not reddened) from the base of the tibia. The small but distinct white cell-dots are slenderly edged by a mixture of red and black scales, the median shade is strong and dentate, the distal area clouded so as to leave some conspicuous pale subterminal spots. Beneath, the hindwing is much paler than the forewing (almost whitish), but both show the white cell-dot, strong median shade and punctiform postmedian. Loja (loc. typ.) and Peru.
- aurantiata.* **A. aurantiata** Warr. (13 h). Quite the brightest orange species of the group. Smaller than *dilogia*, median shade similarly placed, the sinuous series of postmedian dots fairly strong, not connected by any dark line, some dark shading proximally to the subterminal well developed, at least between the radials. Cell-marks typically about as in *subaenescens*, from the brightest forms of which it can be distinguished by the absence of blackish costal edge of forewing. Hindleg of ♂ with long curled hair on the femur and a pencil reaching to about the middle of the tibia. E. Peru, the type from Santo Domingo. — ab. **atridiscata** Warr. has the cell-ring on both wings widened and intensified. Together with the type and perhaps almost equally common. — **purgata** subsp. nov. is less irrorated and mottled, at least beneath, particularly in the distal area (both have strong, rosy suffusion along the cell of the forewing beneath); the proximal subterminal shading, if present at all, is closer to the postmedian than in the type form and the postmedian itself is inclined to throw out sharper teeth at the 3rd radial and 1st median. Costa Rica: Orosi, type ♀ in my collection. A rather smaller ♀, from Irazu, of the *atridiscata* form, was misidentified by DRUCE as "roseigera" (see *Semaepus*); this form has been received also from Chiriqui.
- ignea.* **A. ignea** Warr. (13 h). Larger and more reddish tinged than *aurantiata* and with the median shade of the forewing much more curved, so that its anterior part passes almost midway between cell-spot and postmedian. The tibial pencil in the type ♂ (from Oconeque) is shorter, but may be damaged; in Cushi ♂♂ it is about as in *aurantiata* and it is not inconceivable that we have to do with local modifications of a single species. — ab. *atridiscata.* **atridiscata** nov. corresponds to the like-named aberration of *aurantiata*; I have before me one from Oconeque and one from Cushi.
- tychicus.* **A. tychicus** Schaus. founded on a ♀ from Juan Vinas (Costa Rica), evidently belongs about here. Expanse 33 mm. Reddish orange, with redder striation, the vertex and on the forewing the costal and hind margins darkened, both wings with longitudinal dark shading at 3rd radial to 1st median, hindwing also dark-shaded at 2nd subcostal and 1st radial; cell-spots white, that of the hindwing large; lines fairly broad, dark reddish.
- flavicornis.* **A. flavicornis** Warr. "Closely allied to *ferruginata* and *subaenescens*, possibly an extreme form of this last species, as both come from the same locality. Instead of the small white dot, the cell-marks are large and round, pure white, that in the hindwing twice as large as that in the forewing; the vertex and antennal shaft are bright yellow. In all other respects the description of *subaenescens* applies to the present species. Expanse 40 mm. Carabaya, southeastern Peru; 1 ♂." There are two smaller species, hitherto determined as *flavicornis*,

to which this indefinite description could loosely be applied; but as neither really fits it, it is necessary to make them both known by figures and differential characters; see the two following.

A. rufifrons *sp. n.* (13 i). ♂, 36—39 mm. Face entirely red, or at most with a white line across lower edge. Hindfemur densely fringed with long hair, a tuft from femoro-tibial joint and some fringe to near end of tibia. Termen of hindwing markedly crenulate. Tone redder than in *ignea*, produced by irregular mottling; markings dark grey, fairly well expressed. Cushi, Huanuco, 1900 m, 4 ♂♂ in the Tring Museum, including the type; Carabaya: Oconeque, Agualani and Limbani, 7000—9500 feet. *rufifrons.*

A. mionectes *sp. n.* (13 i). ♂, 33—37 mm. Extremely similar to the preceding, particularly in the yellow vertex, strong white cell-spots (that of the hindwing, however, on an average still larger) and general pose of the grey markings, including the close approximation of the median shade to the cell-spot. Sometimes scarcely, if at all, distinguishable except by the structure and the face, but generally smoother-looking, a more extended greyish suffusion pervading the wings, accompanied by a reduction in the strength of the dark-grey markings; the yellow subterminal spots (near apex and in cellule 3) stand out more clearly, though well developed in both species. Face with lower half or $\frac{1}{3}$ whitish; hindfemur shortly fringed, tibia almost smooth; wing-margins appreciably less crenulate. Oconeque, Carabaya, 7000 feet, 4 ♂♂ in the Tring Museum, including the type; Cushi; Huancabamba (Cerro de Pasco). *mionectes.*

A. ferruginata *Warr.* Larger (40 mm), perhaps intermediate in colour between *ignea* (13 h) and *rufifrons* (13 i), grey suffusion developed along costa of forewing and the principal veins of both wings; vertex also suffused with dark grey. Forewing with costa slightly straighter than in the allies, termen slightly more curved towards apex. Cell-dots white, but minute, surrounded by some dark grey suffusion. Lines much as in *rufifrons*, yellow subterminal spots not developed. Face with lower $\frac{1}{3}$ whitish. Hindlegs lost in the unique type, a ♂ from Paramba, W. Ecuador. *ferruginata.*

A. rufulata *Warr.* (13 i). On an average somewhat smaller than *aurantiata*; less vividly coloured. Hindleg of ♂ simpler (or more liable to denudation?), a light tuft on femur and a femoro-tibial pencil. Postmedian line more connected; subterminal maculation slighter. In the typical form, the cell-spots are almost as in *rufifrons*; in a rather frequent aberration they are quite small, though remaining white; in either case their dark circumscription is very slender, at times very weak. Carabaya, common, from 3000 to 6000 feet; also some Colombian localities. A few rather large examples are known from Huancabamba (Cerro de Pasco) and from Chulumani (Bolivia). — **griseifascia** *subsp. nov.* (= *griseomixta* *Schaus* in coll., nec *Warr.*) is appreciably paler and has the grey markings heavier, the median shade particularly broad, the clear yellow subterminal spots conspicuous. The hair-pencil of the hindleg looks longer than in the type, but the agreement is in all other respects so close that the status seems assured. Costa Rica and Panama, the type ♂ from Sitio, in the Tring Museum. *rufulata.*

A. ockendeni *Prout* (14 c). In structure, size and coloration near *rufulata griseifascia* but with the markings more oblique, the median shade of the hindwing much straighter. The white cell-spot of the hindwing is never so large as in typical *rufulata*; commonly (as also that of the forewing) it has a rather sharp black circumscription. — ab. **atridiscata** *nov.*, with the black circumscription of each cell-dot enlarged, is occasional, though rarer than in *aurantiata*. — Colombia to E. Bolivia, the longest series (including both the holotypes) from La Oroya. *ockendeni.*

A. coenosata *Warr.* (14 c). Similar in shape to *pintada*, but scarcely larger than *ockendeni*. Hindleg with femoro-tibial pencil. Grey suffusions almost as considerable as in *pintada*, chiefly costal, distal and at some of the veins. Cell-marks grey, with heavy black circumscription. Can scarcely be a remarkable aberration of *ockendeni*, as (in addition to the difference in shape) the postmedian series of dots is almost parallel with the termen from the 1st median vein to the costa. Cushi, Huannco, the type ♂ unique. *coenosata.*

A. pintada *Dogn.* (13 i). Somewhat like a much larger *ockendeni* with heavier grey shades and relatively larger cell-spots. Distal margin of forewing more oblique. Hindleg of ♂ without hair-pencil. Loja (type) to S. E. Peru. *pintada.*

A. fasciata *Dogn.* “37 mm. Yellow, irrorated with reddish, the lines thickened into bands of a reddish lilac-grey, the discal spots white, on the forewing quite small, on the hindwing a little larger. Forewing with an oblique antemedian band not reaching the costa; an equally oblique postmedian, its inner edge touching the cell-spot, produced distally in shades on the veins and ceasing at the subcostal; a thick subterminal, interrupted between veins 3 and 4, 6 and 7 and accompanied by black vein-dots; a terminal series of reddish dots preceded by small spot of the ground-colour, without irroration before the dots. Hindwing with the antemedian hardly discernible, the subterminal not interrupted, the rest as on the forewing; termen rounded and slightly *fasciata.*

dentate." Colombia, near Cali, Monte Socorro, at 3400 m, 2 ♂♂. Evidently very similar to *pintada*, but less irregular in shape, more definitely banded, the underside without the white cell-spots, which in *pintada* are there reproduced.

aspera. **A. aspera** Warr., founded on a single ♂ from Popayan, is similar to the most reddish *mediolineata* and with the same leg-structure. A little larger, slightly more crenulate-margined, the markings (except that there is a white cell-spot on the hindwing) less definite, the median shade more reddish, more proximal and strongly sinuate.

mediolineata. **A. mediolineata** Warr. (13 i). Unmistakable from our figure and apparently not variable except in size and (slightly) in tone. Hindfemur of ♂ fringed with hair. Santo Domingo, Carabaya.

brevipalpis. **A. brevipalpis** Dogn. "28 mm. Ochraceous brick-brown, sprinkled with some fine black irroration; vertex and antenna ochraceous. Both wings with discal dot minute, black and white; an indefinite linear median shade; a subterminal series of black vein-dots; a terminal interneural series; fringe lighter. Underside similar, but the median line more distinct." 3 ♂♂ from Bogotá, 2800—3200 m.

khakiata. **A. khakiata** Warr. (14 b). Quite distinct from all the rest of its group in the lack of red or ochre colouring (except slightly on the underside), the strong pale lines, very finely pale veins and elongate cell-marks. Hindleg of ♂ simple. E. and S. E. Peru, the typical series from Cushi.

D. ♂ hindtibia with 2 spurs; 1st median of hindwing arising close to 3rd radial.

albidiscata. **A. albidiscata** Warr. Superficially very like *khakiata*, but with the 1st median of the hindwing almost connate. Apex of forewing not quite so acute, its cell-mark longer, more surrounded with black; both wings more reddish, with the lines more widely sundered, the postmedian more excurved. The type ♀, from Costa Rica, is unfortunately in very poor condition and does not show the markings of the distal area nor the course of the antemedian of the hindwing at the inner margin. — **fulgurata** Warr. may be a race, but is very likely a synonym. It was based on the curious V-shaped or Y-shaped white markings of the distal area; the antemedian of the hindwing, unlike that of *khakiata*, is sharply angled at the fold. Distributed in E. Peru, but scarce.

flavistigma. **A. flavistigma** Warr. Another unique type in poor condition, a ♂ from Sapucay, Paraguay. Expanse 25 mm. Its falcate apex, angled hindwing and olive-buff filling-in of the fuscous cell-rings suggest a small mimic of *Semaepus viridipunctata*, though the termen of the forewing is straight, not convex, and the central tooth of the hindwing less acute. Position and punctuation of ante- and postmedian lines somewhat as in *viridipunctata*.

ocularis. **A. ocularis** Warr. (14 b). Larger, broader-winged, apex of forewing not produced; cell-spots larger, composite, pale-pupilled and scarcely tinged with buff; a rather large costal mark near apex, tinged with rufous. Venezuela (type) and French Guiana. — **suffusaria** (Schaus, M. S.) *subsp. nov.* is larger than typical *ocularis* (38—40 mm), more suffused, the cell-spots larger, more produced distally, olive-yellow, the postmedian and subterminal of the forewing near the costa and between the radials blotched with the same olive-yellow. Castro (type ♂) and São Paulo (♀), both from the Dukinfield JONES collection, now in the British Museum.

costinotata. **A. costinotata** Warr. (14 b). named from the very characteristic costal marks at the origin of the lines of the forewing, is generally recognizable by that alone, although they are not always so sharply developed as in the type form. Hindleg of the ♂ smooth. Palpus strongly elongate. Honduras to Bolivia, the type from Popayan.

marginepunctata. **A. marginepunctata** Dogn., from Loja, may be a dwarf form of *costinotata*, with a forewing length of 11 mm as against 15—16; but M. DOGNIN (in litt.) informed me that the 2nd joint of the palpus does not reach beyond the head, while in *costinotata* it reaches definitely beyond.

posticipunctata. **A. posticipuncta** sp. n. (14 g). At first sight suggestive, apart from its definitely narrower wings, of the pale forms of *urcearia* Guen. (14 c). Structure similar, hindleg without tufts. Costal margin of forewing slightly greyer shaded than the rest of the wing, cell-spot not annular, median shade less angular than in *urcearia*, postmedian dot on 1st radial still more out of alignment with the adjacent vein-dots. Hindwing with a characteristic darkening of the antemedian dot at abdominal margin. Codajas (Upper Amazon), Ecuador, Peru and Bolivia. the type ♂ in the Tring Museum, from Oconeque, Carabaya, 7000 feet.

illinaria. **A. illinaria** Guen., founded on a ♂ from "Brazil", is said to be near *urcearia* (14 c), but with the wings more dentate, the forewing more elongate, the hindwing truncate "below" (? behind), by no means prolonged

at the anal angle. Cell-ring more elongate. Underside light straw-colour with the markings rosy vinaceous, well expressed, especially on the forewing. Face with a rosy tinge; a vinous line across its upper part. Peculiarities shorter than in *urcearia* and only continued to about $\frac{1}{3}$.

A. palingenes *Prout*. Expanse 29 mm. Also very similar to *urcearia* but less broad-winged, with the termen of the forewing somewhat more oblique; cell-ring of forewing definitely smaller than that of hindwing; all the lines (including even the median) expressed by rows of dots, the subterminals of the forewing obsolete in cellules 6 and 3, not enlarged between the radials. Underside pale. Chanchamayo, 1000 m, 1 ♂.

A. stigmatilinea *Prout* (14 b). Slightly larger than *palingenes*, structurally distinguishable both from that and from *urcearia* by the presence, on the ♂ hindleg, of a femoro-tibial hair-pencil at least half the length of the tibia. Cell-marks somewhat more elongate than in *urcearia*; the lines mostly with strong dots or dashes. Santo Domingo, S. E. Peru.

A. plethophora *sp. n.* (14 c). Smaller and less broad-winged than *urcearia* and even than *lichenea*, which it most resembles in tone, but which has a more strongly rosy underside. ♂ with the 2nd joint of the palpus reaching very little beyond the face, the 3rd scarcely so long relatively as in *urcearia*; hindleg smooth. Areole well developed. Costal region of forewing in part somewhat cloudy; subterminal and terminal shades between the radials and on the forewing generally towards the tornus rather strong. An occasional aberration has a large dark cloud on the hindwing, placed a little more forward than that of *importaria* and touching the apex. Bahia (PENTHER expedition, 1903): Joazeiro, Alagoinhas, etc., 6 ♂♂ and 4 ♀♀, type and allotype in the Vienna Museum.

A. lichenea *Warr.* (14 c). Only known from Jamaica, possibly only a very well-differentiated aberration of the variable *urcearia*, which also occurs on that island, in its warmer (*importaria*-coloured) forms; but apart from the different colour and the larger black (white-pupilled) cell-spots it seems scarcely so broad-winged. Underside strongly flushed with red. Only ♀♀ are yet known. A *candara*-like aberration occurs.

A. urcearia *Guen.* (= *ordinata* *Walk.*, nom. praeocc., *directata* *Walk.*, nom. nov.) (14 c). This and the 3 or 4 so-called species which follow have not yet been differentiated by structure or essential markings and may not improbably represent a single polymorphic species. In any case the typical *urcearia*, as here figured, is very widely distributed (Mexico to S. Brazil and Paraguay, besides Jamaica and Trinidad) and often common. The type of *urcearia* came from Cayenne, that of *directata* from the Amazon. The hindfemur of the ♂ is slightly tufted, the tibia smooth. — ab. **importaria** *Möschl.* (14 c) has an ample grey cloud on the hindwing between the median and the postmedian and the ground-colour warmer than in the type. Described from Surinam. — ab. **candara** *Druce*, from Panama, is almost the same as *importaria*, but has the ground-colour pale. — ab. **sylvia** *Druce*, described from a fleshy-tinged Mexican ♀, is a transitional form between typical *urcearia* and ab. *importaria*, forewing much as in the former, hindwing with slight cloudings and with incomplete rows of small spots bordering the subterminal. — ab. (? sp. div.) **guenéei** *nov.* "A little larger, wings broader in proportion, the hindwing with border more convex. Underside of both wings with a distinct rosy cell-ring which is wanting absolutely in the type. Brazil." I have confirmed this differentiation on GUENÉE's original, which is somewhat damaged; I agree that it presents a little the aspect of a separate species, but the Brazilian *urcearia* are commonly rather large and well-marked beneath, so that it may be a broad-winged ab. of a geographical race.

A. diffusa *Warr.* (= *maroniensis* *Dogn.*) (14 d). WARREN, on a Rio Demerara ♀, erected this as an aberration of *urcearia*, characterized by the strong red irroration of the upper- and intensification of the red suffusion of the underside; and he may well have been right. DOGNIN, however, on good material from the Maroni River, considered it a species. At one time I thought I had discovered that the 3rd joint of the ♂ palpus was slightly longer than in *urcearia*, but I have failed to establish this. — ab. **centrata** *Dogn.*, founded on 2 ♀♀, has the hindwing much as in *urcearia* ab. *importaria* but with the ground-colour of *diffusa*; but it has in addition a similar blotch on the forewing. Besides the Guianas, *diffusa* seems to occur in N. Venezuela and Trinidad, though in a form slightly transitional towards *urcearia*.

A. dispergaria *Möschl.*, of which the published figure was so extremely bad that it would be only misleading to reproduce it, is certainly, according to a side-by-side comparison of the types, a near relative of *importaria* (therefore possibly another form of *urcearia*). Underside paler and more sharply marked, upper-side with broader markings but without blotches, the hindwing with the cell-spot black, with a few pale fleshy scales as pupil. Surinam, 1 ♂. DYAR records a presumably similar form from Panama.

A. superflua *Warr.* (14 h) is also possibly a curious aberration of *urcearia*, large, boldly marked with a narrow crescentic mark instead of the usual roundish cell-spot of the hindwing. A ♀ from Palma Sola, Venezuela.

- inquinata*. **A. inquinata** Dogn. (14 d). Ground-colour pale straw-yellow, with little irroration, the irregular markings greyish vinaceous; in the position and form of the large blotch sufficiently near *centrata* to suggest a (remote) possibility that it might represent another extreme development of *urcearia* or *diffusa*. Maroni River. I have seen a similar form, 1 ♂ in poor condition, from Minas Geraes.
- fantomaria*. **A. fantomaria** Schaus. "22 mm." Buff, irrorated with black scales, especially from the base to the median shade; cell-dots minute, encircled with black; the grey median shade and fine black postmedian line waved; a subterminal row of large black interneural spots; antemedian (on forewing only) nearly straight. Aroa, Venezuela. Unknown to me.
- renifera*. **A. renifera** Prout. Much like *renistigma* but with the forewing not quite so broad, the ♂ hindtibia rough-scaled in proximal part only. Colour slightly paler, costal margin of forewing a little greyer, markings in part more mixed with black; median line of forewing posteriorly and of hindwing more lunulate. Guianas. A ♀ from La Chorrera, Panama, has the cell-spot of the hindwing nearly filled with black; probably an individual rather than a racial difference, though DYAR'S Panama "*dispergaria*" (see above) may possibly belong here and confirm it.
- renistigma*. **A. renistigma** Prout (14 d). Somewhat more robust and broader-winged than *urcearia*, the ♂ hindtibia roughly clothed throughout its length, the palpus more elongate. Cell-spots larger, that of the hindwing with a deep indentation on its proximal side, the pale enclosed area grey rather than white; median shade somewhat reddish, accompanied proximally by a well-defined line which touches the cell-spot. Chanchamayo, 2 ♂♂. A slightly weaker-marked ♂ from Corcovado, Rio, 800 feet (E. D. JONES) has the "reniform" cell-spot filled with white.
- nigropustulata*. **A. nigropustulata** Warr. (14 d). More or less ochreous, thus in a measure intermediate in colour between the pale *urcearia* and the reddish *diffusa*. Easily known by the strength of the black subterminal markings; cell-spots also predominantly black. Venezuela to French Guiana, Ecuador, Peru and Brazil, the type from Tijuco, Brazil.
- japaria*. **A. japaria** E. D. Jones (14 d). Unfortunately the type, from Castro, Paraná, and the only topotypical specimen yet known to me are both ♀♀ and present little that is distinctive. The 2nd radial of the forewing arises at about $\frac{2}{3}$ of the discocellulars, thus not quite so far forward as in *ruficosta*, but the known liability, in some of the group, to small variations in this character precludes our depending on this distinction. The type is large, with the costa of the forewing reddish and a very little subcostal black maculation in proximal part and with a maroon-coloured spot on the antenna near its base; but the second specimen lacks this spot, has the normal size of the group and has a slightly less dark costa, bounded by vinaceous grey along the subcostal, so that even at Castro there may be two closely related species. According to the ♂ characters there must in any case be two in the Neotropical fauna as a whole, but the available ♂♂ are very few and in part defective. The ♂ of the widely distributed species which I provisionally regard as *japaria* has the 3rd joint of the palpus less long than in *ruficosta* and a red tuft on the hindfemur; the discocellulars are approximately as noted above, but vary a little in the *ruficosta* direction; the darkened costa varies between reddish and greyish. The range seems to extend from Colombia, Venezuela and the Guianas to parts of Brazil and to include also Bolivia. A Nicaragua ♂ with similar palpus but with glabrous hindfemur, and whatever ♀♀ belong to it (perhaps, by general aspect, N. Venezuela and W. Ecuador) await further elucidation.
- ruficosta*. **A. ruficosta** Warr. (14 e). On an average smaller, the terminal joint of the ♂ palpus long and slender (very unfortunately lost in the type from Bartica, but I do not doubt the determination of other Guiana material), the femoral tuft partly red but less strongly so than in the preceding; forewing with the 2nd radial arising at $\frac{1}{3}$ of the discocellulars or scarcely $\frac{1}{3}$; tone somewhat more reddish than in *japaria*, the costal area broadly reddish but not very sharply differentiated. Guatemala, Panama and the Guianas. The abdomen shows slight indications of a pale dorsal ridge, which may point to a connection with the *caducaria* group.
- ochricomata*. **A. ochricomata** Warr. (14 e), a unique ♂ from Onaca, Santa Marta (N. Colombia), has the 3rd joint of the palpus very long, the hindfemur tufted, the hindtibia short, tufted, with the spurs short. By no means a conspicuous species, but should be readily recognizable on its rediscovery.
- leucaniata*. **A. leucaniata** Warr. (14 e). Larger than most of the group, pale and very weakly marked. WARREN says, on the ♂ type from Rockstone, British Guiana, that its "resemblance to *Leucania* will distinguish it at once. Forewing with apex pointed; hindwing slightly elbowed at vein 4." We figure a Trinidad ♀ determined by its author.
- monera*. **A. monera** Schaus (14 e). Terminal joint of palpus moderate in the ♂, long in the ♀; hindleg of ♂ smooth, the tibia, however, in the specimen examined, perhaps somewhat abraded. I am inclined to regard it

as a form, somewhat less pale, of the variable *subpallida* Warr. Orizaba, Mexico; similar forms are known from Jalapa and from Venezuela and perhaps Colombia.

A. aguzata Dogn., founded on a ♂ from Loja, with which was afterwards associated a somewhat more *aguzata*. yellowish ♀ from Papayan, looks as if it might also be a form of *subpallida*, similar to ab. *grisea* but somewhat more red-ochreous (♂) or yellow-ochreous (♀). DOGNIN compares it with "*confirmaria* Walk." (unfortunately a manuscript name, but believed to be the same as *sypharia* Guen.), than which it has somewhat smaller palpus; the hindwing "looks exactly the same in both species, but the cell-spot of the forewing in *aguzata* is like that of the hindwing, namely a minute white dot broadly encircled with black". Areole small.

A. subpallida Warr. (14 e). Somewhat longer-winged than *urcearia*, particularly as regards the fore- *subpallida*. wing; markings typically weaker, the characteristic subterminal spots of *urcearia* not developed. Hindleg of the ♂ smooth or nearly so. A common S. Brazilian species and apparently distributed in widely remote parts of the Neotropical Region — Mexico, E. Peru, Argentina, Paraguay, Uruguay. Some forms which pass as *monera* (see above) are so similar to it that a possibility suggests itself that we may have to do with two races of one very variable species, the more tropical series warmer-tinted (inclining to reddish), the more temperate (southern) greyer. The following summary of the named forms will bring out this parallelism. — ab. **grisea** Warr., described from São Paulo, has black, minutely pale-pupilled cell-spots. — ab. (?) **potreria** Warr. *grisea*. (14 f), described from Mexico, is like *grisea* but more warmly coloured ("reddish fawn"). — ab. **tenera** Warr. *potreria*. (= *umbrinaria* Schaus, M. S.) has the median area of both wings darkened, giving it a conspicuously banded appearance. Corcovado to São Paulo, not yet known from the northern localities. — ab. **stollaria** Schaus (14 f), from *stollaria*. Mexico, is a strikingly heavily-marked form, with about the same tone as *monera* and *potreria*. — ab. **figurata** *figurata*. Warr. (14 e), from Castro, is almost identical with *stollaria*, even approaching its warmer tone.

A. vuha Schaus, only known to me from the figure and description, "bears a strong superficial resem- *vuha*. blance to some of the species of *Semaeopus*". Cream buff, with the lines fuscous, the space from antemedian to beyond cell and from subcostal to vein 1 suffused with mikado-brown and fuscous. "25 mm." Type a ♀ from Santa Catharina, S. Brazil. Evidently closely analogous to *subpallida* ab. *tenera*, but differently coloured and with the postmedian line more proximally placed.

A. nudaria Guen. (14 f). Somewhat similar to *sypharia* but with the hindleg not tufted. Areole small. *nudaria*. The type ♂, with the indefinite locality "Brazil", is not in very fresh condition and has not yet been matched, but was evidently never a strongly marked form. It may possibly be a larger, redder relative of *subpallida*; with the postmedian dots better connected (by a greyish shade) and some other differences. Terminal joint of palpus rather short for an *Anisodēs*.

A. terrens Warr., a ♀ from Jalapa, Mexico, expanding 26 mm, is said to be "near *subcarnearia* and, *terrens*. judging from the description, also to *aguzata* Dogn". Dull reddish grey, the costa of the forewing darker grey without the reddish tinge; the two lines marked by black dots; terminal dots large and black; cell-spot of forewing with a black rim, of hindwing large, coal-black, with a minute pale pupil. Underside uniform dull rosy, the outer series of dots visible.

A. caducaria Möschl., founded on a ♀, has the palpus and its terminal joint long, the areole small, the *caducaria*. hindwing with abdominal margin somewhat elongate and is certainly better placed in *Anisodēs* than in either *Pleuroprucha* or *Cosymbia*; yet in shape and facies (except for the white, dark-ringed cell-spot of the hindwing) it somewhat suggests a rather large *Pleuroprucha*, while in essential structure it is probably close to "*Cosymbia*" *myrtaria*, which presumably ought to have been transferred here (see above). Length of a forewing 8 mm; still redder than MÖSCHLER's other Jamaican *Anisodēs* (see *ordinata* Walk.), only about half the size, with dots instead of the first line, the underside not lighter, the cell-spots there wanting.

A. inhibita sp. n. (14 g). Palpus long. Hindleg not tufted. Vertex and antenna scarcely paler than *inhibita*. the rest of the colouring. Abdomen with a pale dorsal line. General aspect of *nudaria*, of which the type has lost its abdomen. Palpus longer; pectinations somewhat longer; cell of hindwing thicker; postmedian rather more distally placed. Underside well marked; hindwing rather paler and more yellowish than forewing; cell-spots black; postmedian line wavy, grey; subterminal shades, or one at least, indicated though weak. Rio Verde, Rio Pastaza, E. Ecuador 5000 feet (M. G. PALMER), type ♂ in the British Museum. Also known from San Antonio (W. Colombia) and La Oroya (S. E. Peru).

A. subcarnearia Warr. (14 f). A widely distributed species from Central America to Peru and in Brazil, *subcarnea-* *ria*. the type from São Paulo. I strongly suspect it will have to sink to *caducaria*, but await more confirmatory material from Jamaica. Like that species it was founded on a ♀, and the determination is not quite certain. Palpus of ♂ moderate, of ♀ long; ♂ with a femoro-tibial tuft as in *myrtaria*, or perhaps less red, and with white

dots or ridge on abdomen. In the type specimen these dots are not noticeable and the hindwing has a moderate black cell-spot; this latter seems chiefly a ♀ character, the ♂♂ having it generally much smaller.

- striginota*. **A. striginota** *sp. n.* (14 g). Expanse 34 mm. Palpus (♂) with 3rd joint much less long than 2nd. Head and body concolorous with wings, the vertex and base of antenna rather strongly dark-mixed. Hindlegs and abdomen lost, but the thorax shows the beginning of a pale longitudinal line. Areole present. Very distinct in the strigiform white cell-marks; other markings faint, the postmedian dots followed by a slight pale line. Cushi, Huanuco, 820 m (W. HOFFMANN), type in Mus. Tring.
- polysticta*. **A. polysticta** *Prout* (= *multipunctata* *Warr.*, *praeocc.*) (14 g). Larger. Readily recognizable by the yellow colour and the addition of macular subterminal markings to the well-expressed and punctiform lines. Hindtibia of the ♂ fringed to beyond middle. Costa Rica, Colombia and Peru, the type from Carabaya.
- tolinta*. **A. tolinta** *Schaus* (= *itinerans* *Prout*). Closely similar to *polysticta* (14g), sometimes scarcely distinguishable except in its shorter palpus, especially in the ♂ — in the ♂ with the 3rd joint $\frac{1}{2}$ the length of the 2nd (in *polysticta* $\frac{2}{3}$), in the ♀ barely longer than the 2nd (in *polysticta* definitely longer). The greyish cloudings, longitudinal and transverse, generally weaker. S. E. Brazil.
- proconca*. **A. proconca** *Prout* (14 h). Palpus in both sexes long. The whitish crests of the abdomen slight. Differs from *argenticristata* in having the ♂ hindtibia densely clothed with coarse hair and the spurs rough-scaled, in the shape of the wings and in the presence of a well-developed areole (in the ♀ sometimes small). Mexico, Costa Rica, Venezuela, Trinidad (?) and the Upper Amazon, the typical series from San Esteban, Venezuela.
- argenticristata*. **A. argenticristata** *Warr.* (14 h). Named from the rather conspicuous white crests, which, however, occur also in some of the related species. Somewhat like *excavaria*, but with the shape and venation of the ♂ normal; areole wanting. Palpus with 2nd joint rough-scaled above, 3rd joint longish. Hindleg of ♂ with a femoro-tibial tuft, the tibia otherwise smooth. S. E. Brazil.
- jonaria*. **A. jonaria** *Schaus* (14 h). "Allied to *megista*. Wings light brown, thickly irrorated with greyish scales, forming distinct median and subterminal shades." Lines formed of conspicuous black dots; cell-dots white, rather slenderly black-ringed. Forewing beneath reddish, the cell-spot and postmedian and terminal dots present; hindwing luteous, costa reddish, as also a line connecting the postmedian dots. "Abdomen brown; a dorsal pale streak." S. E. Brazil. The paratypes before me measure 27—28 mm and incline to cinnamon or even more reddish; the pale dorsal ridge is not very strong. Hindleg of ♂ with a short pencil from femoro-tibial joint. S. E. Brazil.
- megista*. **A. megista** *Druce* (14 h). Palpus in both sexes with 3rd joint elongate. Hindleg of ♂ more or less rough-haired, with strong femorotibial pencil. The white dorsal markings of the abdomen moderately strong. Areole wanting, at least in the ♂ (some ♀♀ which have not yet been definitely differentiated retain a narrow areole). A remarkable feature of the ♂ venation is the extraordinarily oblique (almost longitudinal) 3rd discocellular and there is an area (partly raised) of specialized scaling in and beyond the cell. Underside weakly marked. Mexico to Peru, besides N. W. Venezuela and perhaps the Guianas, the type ♂ from Atitlan, Guatemala.
- catharinae*. — **catharinae** *subsp. nov.* (14 h) is much less red than the name-type, the specialized scaling and other cloudings of the forewing conspicuously, though more or less irregularly darkened. Santa Catharina: Jaragua do Sul (F. HOFFMANN), type ♂ in the Tring Museum; Timbó (KOCH), paratype in the Senckenb. Museum. Also from Castro, in the DUKINFELD JONES collection, misidentified as *argenticristata*. Terminal joint of palpus in both sexes long. Hindleg of ♂ with long femoro-tibial pencil.
- anablemma*. **A. anablemma** *sp. n.* (14 h). Terminal joint of palpus in both sexes long. Hindleg of ♂ with long femoro-tibial pencil. Areole quite small (perhaps occasionally wanting). Forewing of ♂ with costa somewhat sinuous or folded, 1st radial somewhat less curved than in the two following species, submedian area (much as in them) expanded and specialized, 2nd median vein arising very near 1st, carving strongly to attain its longitudinal orientation; cell-ring very near the costal margin; distinguishable from the two following species by the shape (especially the lack of terminal excavation), presence of areole and other details; abdominal white spots not strong; punctiform postmedian rather sharp. Trinidad, Venezuela, the Guianas and probably Pará, perhaps also E. Peru; type in the Tring Museum, from Potaro River. This species has sometimes been called *caducaria* (see above) but is certainly not redder than *ordinata*, nor known from anywhere near Jamaica.
- torsivena*. **A. torsivena** *Warr.* (14 i). Very near *tharossa*, but distinct in its larger size, relatively longer wings, more reddish tone and perhaps reduced white on the abdomen. Structure similar, but with the "excavation", in the ♂ forewing shallower, the contortion of the 1st radial somewhat stronger. Bolivia (type), Peru, Ecuador, Gorgona Island and perhaps Venezuela; always singly, perhaps a number of close allies.

A. tharossa *Druce* (= *excavaria Schaus*) (14 i). The ♂ is easy to recognize by its shape and venation: *tharossa*. cell broad, areole wanting, 1st subcostal longer-stalked than usual, 1st and 2nd radial abnormally curved backward (somewhat as in the Indo-Australian section *Mesotrophe*); even the ♀ is somewhat stumpy-winged, the distal margin, even though not actually excavated, straightened in its anterior part. Palpus with 3rd joint in both sexes long. Hindtibia of ♂ dilated, with long femoro-tibial pencil. White spots on abdomen strong. Distributed from Costa Rica to Buenos Aires, not yet found separable into races; *tharossa* came from Chiriqui, *excavaria* from São Paulo and Castro.

A. bizarria *E. D. Jones* (14 g). Near *tharossa* in shape and in its contorted venation but conspicuously *bizarria*. distinct in its firm, straightish lines. The hindleg of the ♂ has a long pencil from the femoro-tibial joint. The 1st median of the hindwing arises somewhat less near the 3rd radial than is normal in the group. Alto da Serra, Santos.

A. flavipuncta *Warr.* (14 i) introduces the "*nebuligera* group", which has already been mentioned above *flavipuncta*. (see *spissata*, p. 102) and which is very homogeneous in the shape, pattern, long palpus, venation (areole well developed, 5th subcostal from its apex or little beyond), generally the strongly tufted ♂ hindtibia, and other characters. Of *flavipuncta*, founded on a ♀ from Rockstone, British Guiana, I know very few examples (San Esteban and Rio Potaro), more weakly marked than WARREN's type. The only ♂ (San Esteban) has the hindtibia short, tufted, with only one (short) spur discoverable. Named from the oval, deep yellow, finely black-ringed cell-spot of the hindwing.

A. suspiciens *Prout* (14 i), taken at Fonteboa and S. Antonio do Javary together with *spadix*, is on *suspiciens*. an average smaller than that species; the termen of the forewing is slightly less oblique and slightly more crenulate. Entire coloration paler, cell-mark of forewing with a dark anterior dot, subterminal shade less developed, less angled, marked with a pair of dark spots between the radials; cell-dot of hindwing with a less fine black circumscription. I have not found any proximal spur on the hindtibia.

A. nebuligera *Btlr.* (= *coxaria Btlr.*, nec *Guen.*) (14 i). The type form is easy to recognize by the cloud- *nebuligera*. ing from which it received its name, but this is inconstant. Better distinctions from *suspiciens* are the rhombiform ochreous cell-spot of the hindwing, the less angled (or non-angled) postmedian on both wings and the slightly squarer apex of the forewing. The type ♂ is labelled "S. bank of Rio Negro, 16 June 1874" and it was only by an unfortunate lapse that BUTLER published it as "Rio Napo"; one of the two ♀♀ which he misidentified as *coxaria* was collected with it on the same day and is evidently an aberration of *nebuligera* or perhaps of *suspiciens*. Also known from other Amazon localities and French Guiana.

A. nodigera *Btlr.* (14 i) differs from *nebuligera* in the large and very characteristically shaped, silver- *nodigera*. white cell-spot of the hindwing. Median shade of forewing thick, little bent; postmedian of forewing generally diffused proximally, of hindwing irregular. Discovered, like the preceding, by Prof. TRAILL on the Amazon, but widely distributed: Panama to Peru, Venezuela, Guiana, Matto Grosso.

E. Hindtibia of ♂ with 2 spurs. Forewing with 1st and 2nd radial stalked or very closely approximated at origin.

A. coxaria *Guen.* (14 g). Palpus with 3rd joint in the ♂ moderately long. Midfemur of ♂ fringed, hind- *coxaria*. femur with very long and dense hair. Forewing with areole very small or wanting. In markings much like *jonaria*; paler, the ante- and postmedian dots smaller. The type ♂, from Cayenne, is decidedly larger than the generality of specimens (especially of the ♂♂); other known localities are Mexico (♀, SCHAUS det.), the Lower Amazon and Castro (a form with white abdominal spots strong).

F. Hindtibia of ♂ with one spur.

A. insigniata *Warr.* (14 k). Unforeseen difficulties have been encountered in the working out of this *insigniata*. handsome species and its nearest relatives. The type, a slightly damaged ♀ from "British Guiana", is not matched by any other known to me except an equally imperfect ♀ from Pará, here figured. While it was supposed that we were dealing with a single variable species this was of small consequence, but now that it is certain that there are at least two, almost certainly more, the case is different. The only ♂ from British Guiana (equally badly localized and apparently not from the same source) has the hindleg untufted, while the only Pará ♂ (collected with the ♀ by the Rev. A. M. Moss and in most respects an excellent match to it, though almost as warmly coloured as *germaini*, infra, the palpus scarcely long enough for *liosceles*) is ab. *liposema* and has lost the hindlegs! Hence I cannot say definitely which of the following forms, if any, will belong to *insigniata* and must leave it to the future to decide. — ab. **liposema** *Dogn.*, founded on a ♂ from Nouveau Chantier, *liposema*. French Guiana, "differs from the type by the cell-spot of the hindwing forming a very small silvery-white

lunule". Similar forms occur chiefly in *liosceles* (Fonte Boa, both sexes, an intermediate ♀ from E. Bolivia and probably another from La Oroya), but see also *germaini*.

- liosceles*. **A. liosceles** *sp. n.* (? *præc. form.*) (14 k). Expanse 30—38 mm. Hindleg of ♂ without hair-tufts. Palpus in ♂ with 3rd joint a little longer than in *resignata* (in the ♀♀ of both about as long as 2nd joint). In colour and markings sometimes almost indistinguishable from *resignata*, though the smallest forms (Fonte Boa) have the median line as slender as in *germaini*, or more so; angle of antemedian line of hindwing scarcely ever so extremely acute as in *resignata*, though not nearly so obtuse as in *insigniata* and *germaini*; on the forewing the median line curves and thickens close to the costa so as almost to meet the subcostal angle of the postmedian; the dark line which bounds the white subterminal spots proximally seems on the whole more fragmentary; cell-spot of hindwing moderate to small, without the tripartite form shown in typical *insigniata*. Distributed. "British Guiana" (see above), Fonte Boa, Popayan, Peruvian Amazons, S. E. Peru, E. Bolivia, São Paulo; a rather large, rather pale pair from Blumenau, Santa Catharina, possibly represents a separable race.
- resignata*. **A. resignata** *sp. n.* (14 k). On an average somewhat larger than *liosceles*, apparently less variable. Hindfemur of ♂ clothed with coarse hair, proximal half of hindtibia with long hair, the spur perhaps shorter than in *liosceles*; other distinctions are noticed under that species. The irroration is on the whole rather dense and regular, the dark markings, perhaps slightly more reddish or less fuscous-mixed; the subterminal line, particularly on the underside, tends to be less interrupted than in *liosceles*, notably on a considerable anterior part of the fore- and a shorter anterior part of the hindwing. N. Venezuela: San Esteban and district, 15 ♂♂, 3 ♀♀, type in Mus. Tring; also 1 ♂ from Fonte Boa and 1 ♂ from Cuzco.
- argyromyces*. **A. argyromyces** *sp. n.* Possibly a form of *resignata* (14 k), as the leg-structure is similar; the 3rd joint of the palpus is perhaps slightly longer in proportion, but the distinction is at best very slight. Expanse 42 mm, thus noticeably larger; at first sight much more recalling *insigniata*, as the silver mark on the hindwing is large and tripartite, its longitudinal lobe, however, definitely shorter and not reaching, nor even approaching, the postmedian line; median shade broader than in *resignata* (in *insigniata* narrower), reaching costa as near the postmedian as in *resignata*, subterminal about as well formed as in this; the antemedian of the hindwing also favours *resignata*, not *insigniata*, that of the forewing is perhaps a little more curved in front of the median vein than in *resignata*. Muzo, Colombia, 400—800 m (A. H. FASSL), a ♂ in my collection.
- germaini*. **A. germaini** *sp. n.* Expanse 33—34 mm. Colour much warmer than in most of the group (a little brighter than ochraceous-buff). ♂ palpus and leg-structure about as in *resignata*; median line more slender, slightly less oblique, reaching costa of forewing further from postmedian; subterminal spots less white. Hindwing with cell-mark shaped nearly as in *argyromyces* or more of a "hammer-head" (one of the transverse lobes tapering more than the other); antemedian at least as weakly angled as in *insigniata*. Matto Grosso (P. GERMAIN), type ♂, together with — ab. **liposema** *nov.*, corresponding to the aberration of *insigniata* of the same name, 1 ♂. Both are in the British Museum.
- liposema*. **A. liposema** *nov.*, corresponding to the aberration of *insigniata* of the same name, 1 ♂. Both are in the British Museum.
- castraria*. **A. castraria** *Schaus* (14 k). from Castro (Parana) and Rio Madeira, is yellower, with an outer dark longitudinal line; hindwing with a slightly stronger tooth at the 3rd radial than in the *insigniata* group (sens. str.), the antemedian line curved, not angled, the cell-mark more mallet-head shaped; further distinctions are not difficult to find. ♂ hindleg much as in *resignata*. The pupa is very like that of a butterfly, the dorsal surface rising gradually from the head to a "hump" at the 1st abdominal; whitish brown, the whitish wing-cases marked with 4 subterminal blackish dots.
- G. Hindtibia of ♂ much shortened spurs wanting or vestigial.
- melitia*. **A. melitia** *Druce* (14 k). Recognizable by its shape and the oblique streak from near the base of the abdominal margin of the hindwing to midtermen of the forewing. Terminal joint of palpus not extreme. Hindfemur of ♂ tufted, tibial spur wanting, a tiny button-like prominence indicating perhaps a relic of it. Guatemala, founded on the ♀. This is the most weakly marked form in the group (or superspecies); oblique shade narrow and not intense, on the hindwing looking to the naked eye single (in the other forms double or triple), the terminal mark between the radials very faint, the shading on both sides of the broad subterminal of the hindwing quite weak, almost evenly developed throughout. There occur also, however, in Central America (Honduras and Costa Rica) and in Colombia and Venezuela, forms which are scarcely, if at all, distinguishable from the following, which may therefore be a separate species, or (perhaps more likely) DRUCE'S originals may represent a rare aberration or very localised form. — **obliquaria** *Schaus*, described from S. E. Brazil, has the oblique shade broader, on the hindwing forming two approximated lines, the coloration more variegated, conspicuous distal maculation between the radials developed in red-brown and pale grey. One ♂ before me (from Corcovado) has this terminal maculation of the hindwing more extended, nearly as in — **abruptaria** *Warr.* (15 a). This form, which I have hitherto considered synonymous with *obliquaria*, must, I suppose, be disting-

uishable, since WARREN described it from the SCHAUS collection, in which *obliquaria* was certainly represented. It refers, I understand, to those *obliquaria* in which the oblique stripe is particularly broad, the postmedian of the hindwing obsolescent (chiefly punctiform) in its anterior half, strong in its posterior, where it is followed by extended dark terminal shading from the 2nd radial to the abdominal margin; WARREN sees herein "a certain resemblance to a worn *Hemerophila abruptaria*" (Vol. 4, pl. 20 b), but I myself cannot see any such resemblance. Prevalent in French Guiana (the type locality), Dutch Guiana and probably through the Amazon country to E. Colombia, Peru and Bolivia.

A. transecta *Schaus* (15 a). Forewing with cell-spot less small and with a longitudinal line or narrow *transecta*. streak from base to midtermen. The oblique stripe (or line) of the two wings quite differently placed, more recalling that of *insignata* or *decussata*; postmedian line of hindwing without the sinuosities in anterior half. Costa Rica (type) and Panama.

A. dispilota *Prout*. Near *decussata* (15 a), agreeing in structure. Expanse about 30 mm. Forewing *dispilota*. relatively somewhat broader, the costa being slightly more arched, the termen posteriorly slightly less oblique; longitudinal lines obsolescent; cell-ring minute; the transverse line beyond it slightly less oblique; a dark blotch between the radials from postmedian to termen. Hindwing with a dark line close to base; postmedian line rather less strongly bent than in *decussata*; a dark blotch between 2nd median and abdominal margin, reaching from postmedian line almost to termen. French Guiana (type ♂), British Guiana and Colombia.

A. decussata *Scheller & Sepp* (= *delineata* *Warr.*) (15 a) superficially recalls *hieroglyphica* *Warr.* (13 c) but *decussata*. is structurally near *melitia* (14 k) and *transecta*. Hindtibia with vestiges of the terminal spurs. Palpus with terminal joint shortish. There is no known species with which it could be confused. The type came from Surinam, that of *delineata* from French Guiana; occurs also in British Guiana and on the Amazon, at least as far up as to Fonteboa. — **curvisignata** *subsp. nov.* Forewing with the oblique line running almost to the apex; hind- *curvisignata*. wing with the postmedian very gently curved. S. and S. E. Brazil, the type from Jaragua do Sul, Santa Catharina.

A. recreta *sp. n.* Larger than *decussata* (15 a), expanding nearly 40 mm, longitudinal mark weakened, *recreta*. median line not so oblique, its continuation on hindwing consequently well distal to and more nearly parallel with the slender curved antemedian; postmedian of forewing not sinuate anteriorly, of hindwing almost straight from abdominal margin nearly to 2nd submedian. E. Colombia: Upper Rio Negro, 800 m (A. H. FASSL), type ♂; E. Ecuador: El Topo, 4200 feet (M. G. PALMER), a quite similar ♂; both in the British Museum.

17. Genus: **Pleuroprucha** *Saalm.*

Erected for a group of small, generally rather slenderly built Cosymbiids in which the areole is wanting, the 3rd joint of the palpus (at least in the ♀) elongate, this genus is not always rigidly differentiable from *Anisodes* by any structural character yet found; for it has been found necessary to include in *Anisodes* several species, even of the Neotropical fauna, which have lost the areole either in the ♂ or in both sexes. It can only be said that if the ♂ shows special modifications, as of shape, venation, etc., the species should generally be sought in *Anisodes* while the simpler forms belong here. Chiefly Neotropical, though one species reaches North America.

A. Hindtibia of ♂ with 4 spurs.

P. archigetes *Prout* (15 a). Extremely like *rudimentaria*. Palpus with 3rd joint longer. Average size *archigetes*. larger; tone, as compared with the pinkish-red of *rudimentaria*, rather more orange-red or brown-red; markings rather stronger; median shade of forewing rather broad. Hindwing with 1st median connate or stalked. Venezuela to French Guiana, the type ♂ from Rio Demerara (not Potaro, as erroneously published). A few large specimens (one of them here figured) have been received from Santos and Santa Catharina, possibly a separable race. No one of the given superficial distinctions from *rudimentaria* is quite constant, but cumulatively they will be found serviceable.

B. Hindtibia of ♂ with 3 spurs.

P. protopages *Prout* (15 a). Similar remarks apply to this species. Smaller than *archigetes* (17—19 mm, *protopages*. against 19—23); 3rd joint of palpus longer than in *rudimentaria*; tone redder, markings moderate in expression (in *rudimentaria* generally weak). Hindwing with 1st median stalked. French Guiana (loc. typ.) and Parà to the vicinity of Santarem.

C. Hindtibia of ♂ with 2 spurs.

P. hypoxia *sp. n.* (15 a). ♂ and ♀, 22—24 mm. Rather larger than *rudimentaria*, 3rd joint of palpus *hypoxia*. longer, particularly in the ♂. Forewing with costal and distal margins less curved, the apex consequently more

acute; hindwing on an average slightly more produced to the anal angle; median shade broader, though not very sharply defined; outer line without conspicuous dark dots or teeth on the veins. From the least bright *archigetes* best distinguished superficially by the outer line. Venezuela, Dutch and French Guiana, the Lower Amazon, Pernambuco and Barra (Bahia); the type ♂ from Caracas, in the Tring Museum.

rudimentaria.

P. rudimentaria Guen. (= ? *calidata* Walk., ? *extranearia* H.-Sch., ? *dispunctata* Möschl.) (15 b). Apparently one of the commonest and most widely distributed of the *Pleuroprucha*; but in view of recent discoveries of closely similar species, one wonders how many more may yet be separated as a result of further research. For the differentiation of *archigetes*, *protopages* and *hypoxia* see above. More reddish than *insulsaria*, more rosy beneath, postmedian line almost without the white element, the black vein-dots generally pretty strong, more sinuously arranged than in *insulsaria*. Terminal joint of palpus short in the ♂, longish-moderate in the ♀. Antenna of ♂ much thickened towards base. Central America the West Indies and South America as far as Argentina and Brazil. GUENÉE's original pair, which I have studied, were from Haiti. WALKER's *calidata* came from the Amazon and the ♂ which is believed to be his type otherwise fits his description so perfectly that I think "Hind tibia with 4 long spurs" must be an unexplained lapse; the 2-spurred leg is in an easy position for examination and the specimen is in every way a normal *rudimentaria*. The type of *extranearia* was from Cuba, that of *dispunctata* from Surinam.

rubescens.

P. rubescens Dogn. is the subject of many uncertainties, notwithstanding that I had some correspondence with its author and have access to a second description, with a pencil-drawing, by WARREN. The unique type, a ♂ from St. Laurent, Maroni, expands 21 mm and is "pale rosy, with subterminal row of black dots and some extrabasal vein-dots, termen finely edged with vinous, intersected at the fringe with yellowish. Forewing with the discocellular a little more deeply coloured, fringe more yellowish than the ground-colour. Underside uniform pale rosy." WARREN calls it "dull greyish pink" with the markings "greenish grey", the median shade present, the two (dotted lines) placed at $\frac{1}{5}$ and at $\frac{5}{6}$; his figure (although he was generally a good draftsman) does not show any resemblance to a *Pleuroprucha*, the apex of the forewing being too rounded, the hindwing too long costally, etc., and might better be a small *Anisodes*; DOGNIN, however, considered it a relative of *rudimentaria*, with longer palpus, and it may possibly have to supplant *archigetes* or *hypoxia*. Abdomen and hind-legs unfortunately lost.

pyrrhularia.

P. pyrrhularia Möschl. On this species, although he only knew a ♀, MÖSCHLER based his genus *Apal-lacta*; but he overlooked one of the subcostal veins and failed to recognize it as absolutely agreeing with his own genus *Pleuroprucha*. Length of a forewing 9 mm. Vertex white. Prevailing colour reddish, with palpus, underside of body, and the legs (except femora and tibiae) yellowish. Lines faintly dark, the antemedian on the forewing straightish, on the hindwing very near base, the postmedian on the forewing incurved posteriorly, on the hindwing angled and with fine teeth (vein-dots); median shade present. Forewing beneath lighter reddish, its hindmargin and the hindwing light straw-yellow; the postmedian and cell-spot show through faintly. Porto Rico. I added, on an inspection of the type, that veins "3, 4" of the hindwing are shortly stalked, not "from a point", as MÖSCHLER gives; that the 3rd joint of the palpus is only about $\frac{1}{2}$ as long as the 2nd; and that the species is presumably one of the forms which are, rightly or wrongly, placed under *rudimentaria*.

molitaria.

P. molitaria Möschl. (15 b), the type of the genus, has the palpus longer (3rd joint almost as long as 2nd). Somewhat less reddish brown, the median shade slender, the lines expressed by vein-dots. Underside pale, the hindwing whitish, without markings. The ♂ antenna has its proximal part somewhat thickened. Porto Rico. A *Pleuroprucha* from Dominica is similar, but more reddish; better material is needed.

roseipuncta.

P. roseipuncta Warr. (15 b) seems slightly narrower-winged than the more typical *Pleuroprucha*, generally smaller, of a fleshy tinge, the terminal dots (dashes) rosy rather than grey. Antenna of ♂ thickened at base, the possibility not excluded that it might be a small colour-form of *ochrea*, median shade perhaps more oblique. Venezuela to Dutch Guiana, the type series from Paramaribo, mostly in poor condition. A few ♀♀ from Brazil seem also referable here.

obscurior.

P. obscurior Schaus. 18 mm. Light brown, irrorated with darker scales, especially on costa of forewing; a dark line at end of cells; an outer row of black points on veins; a terminal row of dark spots; an indistinct inner line on forewing". Orizaba. Unknown to me.

ochrea.

P. ochrea Warr. (15 b). Antenna of ♂ much thickened towards base. Paler than *rudimentaria*, with scattered irroration, costa of forewing a little darkened. Palpus much as in *rudimentaria*, the 3rd joint in the ♂ perhaps a trifle longer. Venezuela (the type), British Guiana, Bolivia and perhaps Brazil; numerous additions to the range may be expected. — **atomaria** Schaus is perhaps synonymous, but as the irroration is on an average heavier in the Central American examples I retain the name for these. Mexico (type) to Costa Rica.

atomaria.

P. insulsaria *Guen.* (= *placidaria* *Guen.*, *invariata* *Walk.*, *insularia* *Hulst.*, err. transcr.) (15 b). Antenna *insulsaria*. of the ♂ with the shaft slender, normal. A further comparison with *rudimentaria* has been made under that species. The name-typical race has normally a fleshy tone, though there is some evidence of a colour dimorphism analogous to that which is well known in some other Sterrhine genera, such as *Dithecodes* *Warr.* and especially *Traminda* *Warr.* (see Vol. 16, p. 52). — ab. (?) **persimilata** *Grote*, described from New York, has *persimilata*. more green scaling, though I gather that it is more opaque than the whitish-green *asthenaria*. Evidence is somewhat conflicting, however, as to the degree of greenness in freshly-bred specimens of *insulsaria*; PACKARD sees in it "an almost imperceptible greenish tinge". — *insulsaria*, which seems to overlap with the following in its range in Central America and the Antilles, spreads through the eastern part of North America from Texas and Florida to Maine. It was first bred from *Celastrus scandens* by PACKARD and (without specification of food-plant) by BELFRAGE in Texas. HULST several years later gave *Cassia chamaecrista* and described the larva as cylindrical, slender, varying from yellow-green through orange to dark brown, with lighter dorsal and subdorsal and broad light lateral line and a fleshy ridge included in the latter; the pupa 10 mm in length, light translucent green to violet brown, its "upper end" nearly squarely truncate, with a sharp spine-like protuberance on each side, always of a violet colour, darkest in the dark pupae; it is attached by the tail to a slight button of silk on a leaf and with a silken girth as in *Cosymbia*. Flowers of *Solidago* have also been mentioned as a food-plant, but it is evidently a pretty general feeder and has recently obtained some notoriety as a potential enemy to corn (maize) crops; see AINSLIE, *Ohio Journ. Sci.*, Vol. 23, p. 89—101, where it is shown that it prefers fresh corn silk to most of the substitutes offered it and that its coloration, though so variable, is protective on that food. There is a succession of broods. — **asthenaria** *Walk.* (= *imparata* *Walk.*, *tropicaria* *Schaus*, MS., *asthenaria*. *truncaria* *Edw.*) (15 b). Distinguished by its delicate watery-green tinge and generally more distinct white lines, or at least the one just outside the postmedian dots. General in the Neotropical Region as far southward as Buenos Aires. The larva was found by Dr. GIACOMELLI (La Rioja) on *Prosopis* and *Acacia*, only in the green form (see *Canad. Ent.*, Vol. 44, p. 369).

P. numitoria *Druce* (15 b), founded on a ♀ from Guerrero, Mexico, is similar to *asthenaria*, but distinguishable by the straighter and more conspicuous outer white line and the almost complete lack of the dark markings. Mexico, Costa Rica and Panama. *numitoria*.

P. paranaria *E. D. Jones* (15 b), described as an *Anisodes*, is very distinct in its firm dark lines, *paranaria*. absence of median shade, etc. Castro, 1 ♀; until the ♂ is discovered, its exact position in the genus cannot be fixed — possibly near *archigetes*.

18. Genus: **Prasinochrysa** *Warr.*

Palpus rather short, upcurved, 3rd joint in both sexes short. Antenna simply ciliate. Hindtibia in the ♂ dilated, spurless, with strong pencil, tarsus abbreviated, with 1st joint swollen; ♀ with 4 spurs. Forewing with areole usually double, but liable to variation; 2nd subcostal arising from the cell. Hindwing with costal touching, or slightly anastomosing with, the subcostal at a point or slightly more, 2nd subcostal not stalked. The very distinct scheme of markings puzzled the early systematists, who described the species as *Chrysaugæ*, *Numeria* or *Eurymene*, while even DYAR in 1914 recorded the type species as a *Pyrinia*! The structure, however, shows nothing remarkable and the genus may well belong to the *Semaeopus* group; but as the genitalia show some resemblances to *Xanthyris* I have provisionally placed it at the beginning of the *Cyllopoda* group. Only two species are known.

P. detracta *Walk.* (= *eucharis* *Warr.*, nec *Dru.*) (15 c). The type of the genus and by far the commoner *detracta*. and more widely distributed species, extending from Panama to British Guiana and the Amazons; WALKER'S original from Venezuela. — **fructidora** *Th.-Mieg*, from Peru, has about the size and shape of the type, but the *fructidora*. markings of the forewing heavy, almost as extended as in the following race, the proximal patch extending to about 1 mm from the costa. Perhaps most of the western forms belong here. — **polydora** *subsp. n.* (16 c). *polydora*. Small and relatively shorter-winged, rather heavily dark-marked, in particular with the patches at tornus broader in proportion to their length. Matto Grosso: Burity, 30 miles N. E. of Cuyaba, 2250 feet, July to October, 11 ♂♂; Tombador, 16 miles S. of Diamantino, 1500 feet, July and August, 4 ♂♂; all collected by C. L. COLLENETTE, the type in the British Museum.

P. quadriplaga *Feld.* (15 c), from the Guianas and Pará, differs in the form of the dark markings and *quadriplaga*. especially in the presence of an apical patch on the hindwing.

19. Genus: **Xanthyris** *Feld.*

This and the 6 following genera have been treated as a separate tribe or subfamily *Cyllopodicae* (see *Supp.-Vol. 4*, p. 23) or *Cyllopodinae*, or (earlier) even their Geometrid affinities unrecognized; not rarely they

were mixed with some totally unrelated (but mimetic) *Diopltidae*. The structure (head, ♂ hindlegs and venation) are so essentially Sterrhine that one can only suppose that they have been superficially modified by their protective needs. It is not, however, at all certain that all the genera represent a single stirps; there are some extraordinary and strongly divergent developments of the ♂ genitalia which will perhaps materially modify our future systems of classification. *Xanthyrus*, with shortened cells, 2nd subcostal of hindwing not stalked with 1st radial, and distinctive shape and pattern, is somewhat widely removed from the rest. ♂ antenna with fascicles of cilia, hindtibia very strongly tufted, tarsus very short; hindtibia of ♀ with 4 spurs. Areole ample, undivided. Genitalia (♂) with uncus bifid, much as in some *Semaopis*, and the 8th segment with a "pseudo-mappa" (a "special modification of the 8th sternite", see Supp.-Vol. 4, p. 23); a modified gnathos is present, as also in other genera of the group. The few species are all closely related.

flaveolata. **X. flaveolata** L. (17 a). One of the first discovered and best known of the South American Geometridae. A detailed description is quite superfluous. Distributed from Costa Rica to Peru, French Guiana and S. E. Brazil.

supergressa. **X. supergressa** Bastelb. (17 a) differs in the broader borders, that of the hindwing nearly one-half the wing-length, and in their less dentate proximal edge (on the hindwing almost simple). The patagium lacks the yellow dot or spot which is almost invariably present in *flaveolata*. The genitalia show differences in the aedoeagus, the gnathos and the costal armature of the valve. Colombia (type from El Credo) and W. Ecuador.

involuta. **X. involuta** Bastelb. (17 a). I have not been able to study this in detail, but suppose it to be another good species, as *flaveolata* varies so little; borders less uniform in width, narrowest at hindmargin, swelling strongly at costa, especially on the forewing. Pebas, Peruvian Amazons.

superba. **X. superba** Druce (17 a). Distinguished by the smooth proximal edge of its black borders, which are much narrower than those of *supergressa*; patagia as in *flaveolata*. Described from Cuzco, the same form known from La Paz, Bolivia. — **planilimbata** Warr., from Chanchamayo (loc. typ.) and the Peruvian Amazons, is somewhat more deeply coloured and has the black markings ampler than in typical *superba*, deeper black than in *supergressa* and without paler veins.

20. Genus: **Micropos** Hbn.

Palpus moderate, 2nd joint relatively long and strong. Antenna in both sexes bipectinate. Hindtibia of ♂ broad, very short, with a single terminal spur; of ♀ with 1 median and 2 terminal spurs. Abdomen in ♂ strongly (sometimes excessively) elongate. Forewing, at least in the ♂, longer and narrower than in most of the group; cell over $\frac{1}{2}$; areole double. Hindwing with 2nd subcostal stalked. Type, *M. longalis* Hbn. A very natural genus except as regards *laeta* and its immediate offshoots, which are placed here chiefly on account of the 3-spurred ♀ hindtibia.

A. Antenna of ♀ simple; abdomen of ♂ not elongate.

laeta. **M. laeta** Walk. (= pseudisis Bsd., isis Warr., nec Hbn.) (17 c). Pectinations of ♂ rather short, terminating in tufts of cilia. Genitalia of ♂ more *Cosymbia*-like in the valves, while those of typical *Micropos* have quite simple, undivided valves. Apart from the structure, the typical form is easily distinguished from similarly-marked species in the succeeding genera by the bent transverse band of the forewing, which turns outward towards termen instead of continuing to run towards tornus; colour generally of a slightly deeper orange.

ops. Mexico (loc. typ.) to Colombia and Venezuela; its occurrence in Surinam is doubtful. — **ops** Druce (17 c), almost confined to Bogotá and adjacent localities, is very distinct in the much reduced black markings; the transverse band is never complete; in the typical form it is reduced to attenuated vestiges at each end, but transitions also occur. — **bogotensis** Dogn., also from Bogotá (La Union, 1 ♀), is probably an extreme aberration of *ops*, with the borders further attenuated (the terminal of the forewing posteriorly and of the hindwing in large part only about 1 mm wide), the costal black of the forewing ceasing at the end of the cell, the transverse band only slenderly represented by some black scales on the discocellulars. I have an almost equally extreme ♀ from Upper Rio Negro, E. Colombia, collected with normal *ops* ♂♂.

mamillifera. **M. mamillifera** Warr. May also well be a form of *laeta* (17 c); structure the same. Borders not, as in *ops*, narrowed; costal projection (incomplete transverse band) large, "mamillate", behind the 1st median vein rounded, instead of tapering to a point as in *ops*. Cachabé, Ecuador, low country, 1 ♀.

intercepta. **M. intercepta** Walk. (= antholia Walk., adunca Bsd.) (17 c) was made the type of a genus *Scaptia* Walk., but quite agrees in structure with typical *Micropus*, though one "sport", out of numerous ♀♀ examined, has lost the proximal spur from both hindlegs. Distinguished by its narrow longitudinal streak; the distal one always ample, flattened anteriorly. Mexico to Nicaragua, WALKER'S types respectively from Nicaragua

and Honduras, BOISDUVAL's, according to DRUCE, from Mexico. The addition of "Bogotá" in the notoriously inaccurate "Lép. Guatemala" is no doubt erroneous.

M. marginata Dogn. (= *alcidamea* part. Druce, err. det.) (17 b). ♂ abdomen less extremely elongate *marginata*. than in the following, forewing less narrow, distal border much narrower, posterior border rather broader, sinuous. Panama.

M. ochra Druce (= *longicorpus* Warr.) (17 c). Here the characteristic shape of ♂ *Micropos* reaches its *ochra*. highest development. Black posterior border of forewing narrow, tapering gradually to a point at base, its proximal half somewhat marked with yellow. Venezuela.

M. longalis Hbn. (17 b). Apart from the less extreme shape, this is distinguishable from *ochra* by the *longalis*. absence of the black posterior borders. The typical form, from "Brazil" (presumably Pará or Bahia) had the black borders moderately broad and is the prevailing form in the Guianas and about Pará. — ab. (?) **latifasciata** *latifasciata*. Warr. has the borders broader at least on the underside, but I am not sure that it needs a separate designation as it seems to be chiefly a very frequent ♀-form in the same localities as typical *longalis*. It should be added that ♂♂ also occasionally (though only rarely) show this broadening of the hindwing border on the u n d e r - s i d e. — **angusta** Warr. (17 b), from Colombia, has the black borders definitely narrower. Best known from *angusta*. Bogotá and its vicinity.

M. elegans Druce (17 b). Black border of hindwing about as in *longalis angusta*, that of the forewing *elegans*. much narrower than in that species, especially in the apical part. Pretty constant in N. W. Venezuela, E. Ecuador and E. Peru, but a ♂ from Rio Pastaza is intermediate, suggesting that it may be a further race of *longalis*. In any case it will probably sink to *simplex*.

M. simplex Feld. (16 k), founded on a ♀ (not "♂" as published), can scarcely be an aberration of *longalis simplex*. *angusta*, the usual *Micropos* of the district (Bogotá) but is extremely close to some ♀♀ of *elegans*; I can see no difference, except that the apical border of the forewing is very slightly narrower, and should have no hesitation in merging the two names but that the FELDER collection contains 2 ♂♂ labelled "LINDIG" (probably from the same locality as the type) in which the narrowing of the border has proceeded appreciably further and the boundary between the two colours appears somewhat more oblique outward between the 2nd subcostal and the 2nd radial, the curve or bend more abrupt about the latter point. There may, therefore, be two separate races involved; further material from Bogotá will repay study.

M. eucyrta sp. n. (17 b). Smaller than *C. angusta*, *elegans* and *simplex*, expanding 34 to 39 mm, colour *eucyrta*. more orange. Further distinguishable chiefly by the much more convex or vaulted distal boundary of the ground-colour, especially on the forewing, where a straight line drawn from subcostal to 2nd submedian at the junction of the two colours would cut off a half-circle or a still longer section. On the underside this is a little less noticeable, as the black border there narrows a little more at the hindmargin or tornus. Peruvian Amazon (DE MATHAN, via the OBERTHÜR collection), a series of 17 good ♂♂ in the British Museum, some of them labelled Chachapoyas, Dept. Amazonas, and doubtless all collected in the same district, as they are very homogenous.

21. Genus: **Paratyria** Warr.

Erected by WARREN, with *darna* Schaus as genotype and sole species, merely on the one character of "antennae simple in both sexes". Actually the ♂ has very short, the ♀ still shorter, even ciliation. It should be added that the hindtibia is slender, in the ♂ with a long pencil of hair from its base (apparently liable to abrasion unless there are two species mixed, of which there is no other evidence) and with a pair of vestigial, closely approximated, terminal spurs; in the ♀ 3-spurred, as in *Micropos*. Areole very ample, undivided.

P. darna Schaus (17 c). A small and rather slender species, sufficiently characterized by its structure. *darna*. Nova Friburgo (loc. typ.) and Minas Geraes. — **paranensis** subsp. nov. Slightly more orange yellow, the tegulae *paranensis*. not marked with yellow, the anal end of the ♂ abdomen not white beneath; wings with black borders broadened, notably the hindwing. Castro, Parana, 3 ♂♂, 5 ♀♀, type in the Tring Museum. The uncus is somewhat broader than in *d. darna* but (without dissection) no other difference has been found in the genitalia. The ♀ venter is black throughout but this may be the case also in the name-typical ♀, which I have not seen.

22. Genus: **Cyllopoda** Dalm.

Palpus typically rather long, in some species more moderate. Antenna in the ♂ with moderate pectinations. Hindtibia of ♂ spurless or with vestigial spurs, more or less modified, with hair-pencil; of ♀ with terminal spurs only. Forewing with cell well over $\frac{1}{2}$, areole double, the proximal one often small, 2nd subcostal arising from cell. Hindwing with 2nd subcostal stalked. Genotype: *claudicula* Dalm.

- claudicula*. **C. claudicula** *Dalm.* (17 d). Pectinations of the ♂ short, surmounted with fascicles of cilia. Hindleg of the ♂ very short and weak. Easy to recognize by the black posterior borders and by the streak along the median vein of the hindwing. Black parts broader in the ♀ than in the ♂. Brazil, from the Lower Amazon to São Paulo, common in the Rio district, the type locality. — **catabathmus** *subsp. nov.* On an average smaller (♂ 30—32 mm, ♀ 35 mm), longitudinal black streak of hindwing relatively attenuated, the proximal yellow spot of the forewing somewhat truncate, i. e. terminating in a steeper curve, so as to fall more perpendicularly on the submedian vein; tegula without the yellow mark. Santa Catharina: Blumenau, 3 ♂♂ and 1 ♀ in the *filigera*. British Museum; others, less exactly localized, show the same tendencies in varying degrees. — ab. **filigera** *nov.*, a ♂ from Neu Bremen, Rio Laeiss (F. HOFFMANN), expanding 34 mm, has the forewing of typical *catabathmus*, the streak of the hindwing reduced to a fine line on the 2nd median and a few black scales along the median itself. The same aberration can also occur in almost typical *claudicula*, a ♂ in the Tring Museum, unfortunately without locality-label, measuring 38 mm.
- radiata*. **C. radiata** *Warr.* Very large (unless “46 mm” is a misprint). Forewing with the oblique yellow mark wedge-shaped, placed between median and 2nd submedian, ending bluntly rounded on fod at $\frac{2}{3}$; a very small longitudinal streak in front of it, in middle of cell; outer patch large, oval, its distal edge slightly waved. Hindwing with distal and abdominal margins black, as well as end of costal margin; a longitudinal central black streak, diffused at its edges. Nova Friburgo, Brazil, type ♂; I have recently seen 2 smaller ♂♂ and incline to suspect in it a striking aberration of *claudicula*, akin to ab. *filigera*.
- angusta*. **C. angusta** *Warr.* (17 c). founded on a pair from Reyes, Bolivia, agrees nearly with *claudicula* in structure, but has the ♂ hindtibia thicker and lacks the longitudinal yellow patch of the forewing; there is a faint cell-ring on the outer spot; the hindwing is predominantly black, the yellow patch at base of medians rather less small in the type ♂ than in the figured allotype.
- jatrophia*. **C. jatrophia** *L.* (= *jatrophae* *Hbn.*) (17 d). Somewhat narrower-winged than *claudicula*, at least in the ♂, and lacking the black posterior border of both wings, costal border of hindwing and longitudinal stripe of the latter; ♂ with pectinations longer, midleg fringed on femur and distal part of tibia, hindleg strongly clavate and with femoro-tibial hair-tuft. Outer yellow patch of forewing variable in size and slightly in shape, but always much narrower at costal end than posteriorly. Distributed in Venezuela (with Trinidad and Tobago Island), the Guianas and the Lower Amazon. — ab. loc. **puta** *Strand.* The Trinidad ♂♂, more uniformly than those from the Guianas, have the yellow outer spot strongly narrowed anteriorly, almost pear-shaped. — **osiris** *Cram.* (17 d) has the black much increased in extent, particularly so the border of the hindwing. So far as I have seen, it appears to be localized in the eastern part of British Guiana and I suspect that CRAMER's type locality “Surinam” may have referred to territory which was subsequently ceded to the British. A single ♀ from Rio Javary, ca. 800 feet is closely similar.
- ovata*. **C. ovata** *Warr.* (17 d). I supposed this to be a western form of *jatrophia*, but find that the ♂ midleg is not tufted. Further distinguished by the more regularly oval, commonly broadened, outer yellow patch of the forewing. It was described from Carabaya (type) and Bolivia, but extends, with little variation, through Ecuador and Costa Rica to Nicaragua and British Honduras.
- protmeta*. **C. protmeta** *sp. n.* (17 d). ♀, 43—46 mm. Quite near to *ovata*, with the same long slender palpus, the same build of abdomen, etc., possibly a large, broad-winged form of that species. Tegula with the yellow mark very small, punctiform. Characterized by the almost complete loss of the transverse band of the forewing, thus bearing nearly the same relation to *ovata* as typical *Atyriodes albiventris* to ab. *pachiteae*. The paratype is not quite so large as the figured type and has the distal borders somewhat less broad, the yellow area nearly reaching the costa in front of the areoles, the black costal border more protuberant in the direction of the lost band. Pebas, Loreto, the type, and “Peru” (probably Amazonian), the paratype, both collected for OBERTHÜR by M. DE MATHAN. A ♂, very similar to the paratype though slightly intermediate, has been found in the Tring Museum, merely labelled “Ecuador (BUCKLEY)”, i. e. E. Ecuador, perhaps Sarayacu; expanse 41 mm.
- curychoma*. — **eurychoma** *subsp. nov.* ♂ 38 mm, ♀ ♂ 40—43 mm. Border of hindwing considerably broadened, about 4 mm wide in the ♂, 5 mm or more in the ♀♀; forewing also with an increase of the black, though this is chiefly in the direction of a restoration of the transverse band, triangular expansions of the tornal and costal borders almost (on the ♂ underside quite) meeting at the fold (compare *A. albiventris* ab. *velina*). — ab. **osiriodes** *nov.* A large ♀ (45 mm) has the transverse band fully developed; very like *jatrophia osiris* except in the ample, rounded outer yellow spot. Iquitos, the ♂ type (Mus. Brit.) collected by M. DE MATHAN, the 3 ♀♀ (Mus. Tring) by G. KLUG.
- postica*. **C. postica** *Walk.* (17 d). Palpus and pectinations appreciably less long than in *jatrophia*; abdomen yellow laterally, but white ventrally (in *jatrophia* both these areas are yellow, but with a black dividing-line); forewing with the proximal yellow patch much more extended anteriorly. Venezuela. DOGNIN in an early

work recorded it from Loja, but this has not, I think, been confirmed. In both this and *expansifascia*, the dividing-wall of the areole is occasionally obsolete.

C. gibbifrons Prout (17 e). The face, which is rounded and somewhat prominent in *postica*, is here *gibbifrons*. more strongly protuberant, especially in the ♂. Hindtibia of ♂ white, with 2 very short spurs, tarsus less extremely short than in *postica*. Pectinations much shorter (less than twice diameter of shaft). The black costal border of the forewing is on an average not quite so narrow and there are, in addition, a few blackish scales following it and nearly always a blackening of the median vein; on the other hand, the black distal area shows much less tendency than in *postica* to project basewards on hindmargin. Border of hindwing on an average a little broader than in that species. Venezuela, the type series from Suapure. The British Museum has a pair of small specimens from Tobago.

C. nigrivena Prout (17 e). Larger and with more black than *gibbifrons*, the abdomen black beneath, *nigrivena*. with a lateral and a posterior dorsal yellow line. All the borders of the hindwing (excepting the basal part of the hindmargin) are black, the costal (except a narrow yellow stripe from base) and distal broadly so. S. E. Brazil, the type from Nova Friburgo; only ♀♀ yet known. Very similar to *Atyria dubia*, which has the areole single, the abdomen dorsally without the yellow line.

C. latiflava Warr. (17 e), founded on a ♂ from "Colombia" (probably Bogotá, the known locality), *latiflava*. has the hindmargin (narrowly) black on the fore- but not on the hindwing, the latter showing no black except the narrow distal border. On the underside the black of the hindmargin of the forewing is replaced by whitish. Pectinations shortish-moderate. ♂ hindleg much as in *postica*. I have seen old specimens purporting to come from "British Guiana" and "Brazil" but doubt their correctness.

C. expansifascia Prout (17 e). Similar to *latiflava*; palpus, as in that species, with the terminal joint *expansifascia*. rather short. Pectinations shorter, scarcely twice the diameter of the shaft. Yellow proximal patch of forewing less triangular than in *latiflava*, its distal edge more oblique and more rounded, so that the black band beyond expands both anteriorly and posteriorly; hindmargin black both above and beneath. Hindwing with the terminal band slightly broader than in *latiflava* and with partial blackening of the costal and abdominal margins. Bolivia (the type from Charapaya) and E. Peru.

C. brevipлага Dogn. (17 e) was compared with *quicha* Schaus (an *Atyria*), but differentiated by the *breviplaga*. longer pectinations, complete absence of any black subcostal band on the hindwing beneath, the more rounded outer spot of the forewing and the less extended white of the face (here confined to its central and lower part). Structure and general coloration (particularly of the abdomen) nearly as in *postica*, the face almost as prominent as in *gibbifrons*, the palpus rather short. I have before me topotypical specimens, a ♂ from Moyobamba and an aberration (JOICEY collection) from Charape. N. Peru. — **versicolor** Dogn., a larger ♂ from Numbala *versicolor*. River, near Loja, is probably, according to its author himself, a mere aberration, at most a local race, with the yellow parts considerably paler; DOGNIN (in litt., 1 August 1917) found "no other outstanding difference", though earlier he suggested it was an albinistic form of a species between *breviplaga* and *postica*. The description (by oversight?) implies that the black posterior border of the forewing is reproduced beneath, which is not the case in *breviplaga*. — Dr. H. SICK (see below) makes this a *Streblopoda*, but I suspect a misidentification.

C. roxana Druce (16 k). The only species in the group with red ground-colour. Palpus rather short. *roxana*. Pectinations little longer than diameter of shaft, heavily ciliated. Besides the type ♂, from the Valley of the Cosnipata, E. Peru, I have seen only a ♂ from Santa Ana, 3000 feet (Yale Peruvian Expedition).

C. angustistriga Warr. (17 e). In structure near *roxana*. Abdomen of the ♂ long and slender. Recognizable by the exceptionally narrowed longitudinal yellow streak (hindmarginal) of the forewing. Black border *angustistriga*. of hindwing narrow except at apex. Hindleg formed nearly as in *gibbifrons*. S. E. Peru, 2 ♂♂.

C. bipuncta Warr., a ♂ from "Peru", expands 35 mm. Forewing with the longitudinal patch about *bipuncta*. $\frac{2}{3}$, placed between the median and submedian veins, the outer one long and irregular; apical fringe white at tip. Hindwing yellow, abdominal margin narrowly black, distal border broader, widening to before apex where it is squarely cut off; a black spot at extreme base, another at the anterior end of the discocellular.

23. Genus: **Atyriodes** Warr.

Characters nearly as in *Cyllopoda*, of which it might be regarded as a section, the ♂ antenna with fascicles of long cilia, not pectinate. Face not protuberant. Palpus rather short. Hindtibia of the ♂ with a stumpy spurlike process or aborted spur. Just as we go to press, Dr. H. SICK shows, from important differences in the tympanum, that *cyrene*, *figulatum* and *parapostica* should form a separate genus (*Streblopoda* SICK).

- parapostica*. **A. parapostica** Dogn. Distinguished from most species of the group by the comparatively small size of the spots of the forewing, the outer one not reaching the 2nd median vein. The black border of the hindwing continues about halfway round the costal and abdominal margins. Founded on a short series of ♂♂ from Loja. Perhaps the colour is slightly more ochreous than in its neighbours, but DOGNIN compared it chiefly with *C. jatropharia* and *postica*.
- jalapae*. **A. jalapae** Schaus (= *cyrene* Druce, part.) (17 f). Black borders moderate, that of the hindwing running a little way up the abdominal margin. Mexico to Panama and apparently in parts of Colombia and Ecuador. Single specimens from Guiana and parts of northern Brazil may represent a race (or races) with broader borders.
- albiventris*. **A. albiventris** Walk. (17 f). Distinguishable by the crenulate distal edge of the yellow area of the hindwing and, more or less, of the outer yellow spot of the forewing; only a very few specimens of other *Atyriodes* show sufficient undulation of this border to cause any uncertainty. *albiventris*, unfortunately the first described, is an extreme and rare form with the transverse band of the forewing entirely wanting. "Valley of the Amazon."
velina. — ab. **velina** Druce has the band present but not quite complete, a slight break in it occurring behind the 2nd median. Rio Napo (type ♂). Scarcely worth separating from the following, which has priority. — ab. **crenulata**
crenulata. **Warr.** Band complete, but at its narrowest part absolutely thread-like. Rio Ucayali. — ab. **pachiteae**
pachiteae. **Strand.** Band about 1 mm wide, or at least $\frac{1}{2}$, at its narrowest part. Mouth of the Pachitea River, E. Peru. I had sunk it to *crenulata*; in the "Lepidopterorum Catalogus" it was accidentally inserted out of place by the editor. I would include here all the forms in which the two yellow spots are well separated. This species belongs chiefly
guiriana. to the Peruvian Amazons. — **guiriana** *subsp. nov.* is rather paler yellow, the abdomen with a yellow line in place of the usual stripe, the black area between the two yellow patches 2.5 mm wide at its narrowest and looks like an attempt to mimic the common *C. jatropharia*, from which of course it is distinguishable by the antenna, the short palpus, the anterior abbreviation of the outer spot of the forewing, etc.; the crenulation of the border of the hindwing is rather slight. Patao, Guiria, August 1891, 1 ♂ in the Tring Museum. Possibly a separate species.
- isthmica*. **A. isthmica** Prout (= *globulata* Warr., MS.) (17 f). Distinguished from *albiventris* by the larger, much more rounded outer patch of the forewing, narrower border of the hindwing and especially the smooth (not crenulate) proximal edge of the black borders. Variation in the width of the oblique black bar of the forewing somewhat analogous to that of *albiventris*, but much less extreme; the type has it extremely slender. "Peru" (? Amazonas) and E. Colombia. Possibly a form of *cyrene* with the black parts reduced.
- figulatum*. **A. figulatum** Dogn. (17 f), founded on a ♂ from Huancabamba, N. Peru, is differentiated from *janeira* by its size, its ovoid subbasal spot and on the hindwing the continuation of the black border (though extremely slenderly) along the entire abdominal margin. I suspect this is merely a local form (N. E. and E. Peru) of the following.
- cyrene*. **A. cyrene** Druce (= *coroiconis* Strand) (17 f). Apart from its deeper yellow colour and on an average less narrow border of the hindwing, the shortening of the distal-posterior black edging of the proximal spot separates this form from (subspecies?) *figulatum*. DRUCE described from Bolivia and STRAND gives a very perfect description of it (except that the antennal structure is not mentioned) from the same country (Coroico district); it occurs also in Cuzco and according to STRAND on the Pachitea River.
- janeira*. **A. janeira** Schaus (17 g), besides being the only species of *Atyriodes* known from its faunistic area, is easy to distinguish by the black posterior border of the forewing. The name-typical form belongs to the district of Rio Janeiro. — **lugens** Prout (= *approximans* Schaus, Warr., nec Walk.) (17 g, as *janeira*), the type of the genus, has the black borders of the hindwing broader, a black costal border also developed on this wing both above and beneath, the yellow on the forewing also slightly restricted, its white apical scaling less (or scarcely) developed. Castro, Parana. Possibly a separate species.

24. Genus: **Atyria** H.-Sch.

The name of this genus was given by HÜBNER, the first description by HERRICH-SCHAEFFER, who is therefore its author from the standpoint of the systematist. Characters of those *Cyllopoda* in which the palpus and ♂ pectinations are not elongate, the latter usually ending in fascicles of cilia, but with the areole always simple. Hindtibia of the ♂ commonly with a small knob-like process, presumably a modified spur. In view of the occasional inconstancy of the areole in *Cyllopoda* (see above) it seems scarcely tenable as a genus unless some new dichotomization can be devised; but I have retained it as a temporary convenience. Genotype: *isis* Hbn.

A. mnemosyne *Prout* (17 g). Aberrant in having the ♂ antennal structure of *Atryiodes*. From *Micropos mnemosyne*. *laeta ops*, the only Cyllopodid with which it could possibly be confused, distinguished by the structure and the absence of the yellow dorsal stripe of the abdomen. The ♂♂ are locally common in N. E. and E. Peru, but I have never yet seen a ♀; its discovery may perhaps further upset our taxonomy.

A. alcidamea *Druce* (17 g) has the same bright yellow colour as *mnemosyne*, but differs in the pectinate *alcidamea*. ♂ antenna, narrower borders and absence of the transverse black band; also in the partial development of a yellow dorsum, recalling *Micropos*. The ♂, but not the ♀, has the black border of the forewing greatly attenuated on the underside, the rest of its (upperside) extent being there indicated only in slight olive-grey. E. Ecuador: Intaj and Sarayacu, a short series. The only further examples which I have seen are a pair from Rio Palcazu, Huanuco.

A. portis *sp. n.* Expanse 33 mm. In a measure intermediate between *alcidamea* and *limbata*, the fore- *portis*. wing narrowed as in the latter, the hindwing shaped and marked almost as in *alcidamea*. Abdomen slender, black above, white beneath, the yellow lateral stripe only indicated by a slight and interrupted line. Forewing with costal border encroaching slightly on to the cell, narrowing less suddenly than in *alcidamea*, at its narrowest part bounded by the stalk of subcostals 2—3, distal and tornal border nowhere less than 1.5 mm, hindmarginal border narrowing gradually to a point near the base. Hindwing with costal border not present on proximal half (in the allies continuing baseward to beyond middle). The pectinations appear a trifle longer and less slender than in the *limbata* group, the hindtibia whiter, with tarsus still shorter. Carabaya: Rio Inambari to Limbani (G. OCKENDEN), 1 ♂ in the Tring Museum.

A. allogaster *Prout*. Appreciably less orange than in the other similar forms before me and with a *allogaster*. pale yellow dorsal line, nearly as in *alcidamea*. 30 mm. Apical border of forewing broadened (at 1st radial over 4 mm, at 3rd radial 3 mm), distal border of hindwing above less narrowed between 1st radial and 2nd median than in *circumdata*; the costal border of the forewing has a (very slightly) more angular outline in reaching its narrowest point. "Peru", 4 ♂♂, evidently all collected together, but without given locality. A ♀ from Samaipata, E. Bolivia, seems to agree with them.

A. circumdata *Mssn.* (17 g). Founded on a ♂ from the valley of the Rio Pongo (which I understand *circumdata*. is in the Yungas de La Paz), Bolivia, altitude between 2000 and 2600 m. I have not seen anything that agrees quite satisfactorily with it. If the type was really "citron yellow", the colour would place it with *allogaster* and as the figure indicates a white line (dorsal, unless the abdomen was twisted) it may be that my species will have to sink; but it is almost inconceivable that MAASSEN should have described the dorsum of *allogaster* merely as "black" and the venter as yellow. The similar but slightly deeper yellow species here considered to be *circumdata* has the venter almost as white as in *allogaster*, the dorsum uniformly black, borders of forewing not very irregular in width. Chanchamayo to East Bolivia.

A. centralis *Dogn.*, a ♀ from Vilcanota, Peru, "28 mm", differs from the preceding in the presence, *centralis*. on the 2nd discocellular of each wing, of a small black cell-dot, better marked on the under-surface. Unknown to me.

A. limbata *Btlr.* is larger than the rest of the group (the type ♂, from Huasampilla, Peru, 9000 feet, *limbata*. measures 37 mm, not quite "1½ inches" as BUTLER gives), costal border of forewing in places reaching the cell-fold, apical border relatively less broad than in its smaller allies, abdominal margin rather narrowly black. The abdomen beneath is decidedly less white, but is unfortunately not in good condition; in a rather less large Huancabamba ♂ which I associate with it, it is definitely dark. It should be added that BUTLER's supposed "brush of white hairs from the side of the thorax" is really the femora-tibial hair-pencil (!).

A. commoda *sp. nov.* (17 g). Intermediate between *circumdata* and *lemonia*, perhaps a race of the *commoda*. latter, which it closely resembles in the depth of its ground-colour. Black borders less broad than in *lemonia*, the costal scarcely narrowing at all at the end of the cell, the midterminal decidedly narrowed. Abdomen beneath cleaner white. Peruvian Amazons: Chachapoyas, type ♂ and 2 others; Tambillo, 2 ♂♂. Type in the British Museum.

A. lemonia *Druce* (= *obtusimacula Warr.*) (17 h). Distinguished from *circumdata* by the much broader *lemonia*. black borders of the forewing and the different shape of the enclosed yellow area. Abdomen beneath (as in *alcidamea* and probably *circumdata*) blackened in the ♀ only. Ecuador, the types respectively from Chiguinda and Loja.

A. compensata *Dogn.* "30 mm. Forewing orange yellow, entirely bordered with black; this border *compensata*. costally reaches the subcostal (except that in the middle it only reaches the costal), along the inner margin follows vein 1, remaining nearly of the same width to beyond veins 2 and 3, then extends gradually and becomes very broad in the apical region. The hindwing has an abdominal border which commences as a simple edging

at the base, broadens gradually and fuses with a broad distal border, succeeded by a still broader costal one; this latter invades the entire cell and projects two rays (on veins 2 and 3) which run to the distal border" (DOGNIN abridged). Hillapani, Peru, 1 ♂ in fresh condition. DOGNIN suspects that it will prove variable.

- albifrons.* **A. albifrons** Prout (17 h). Closely like *C. postica*, but with shorter pectinations (scarcely over twice diameter of shaft), face white, tegula black. Hindwing with an extremely fine black hindmarginal edge, the distal border very regular and constant (2—2.5 mm wide), the outer yellow patch of the forewing with a characteristic form. "Peru", without exact locality, only ♂♂ known.
- quicha.* **A. quicha** Schaus (16 k). Palpus and ♂ pectinations short, the latter scarcely twice the diameter of the shaft. Generally smaller than *isis*, the black borders reduced, especially that of the hindwing subcostally. Face only in its lower part white (one-half or rather less). "Peru", again not localized.
- isis.* **A. isis** Hbn. (= *approximans* Walk.) (17 h). Generally a moderately large species, with the black borders almost complete on both wings, though in varying extent, the anterior band of the hindwing always leaving a yellow border in front of the costal vein, from base to much beyond middle. Pectinations short, the tufts of cilia at their tips very short. Abdomen beneath white in the ♂, blackish in the ♀. Brazil (Bahia southward, notably in the Rio Janeiro region) and Paraguay are well-known localities; also, according to BURMEISTER, the northern provinces of the Argentine. Typical specimens in the Tring Museum from "Popayan" (1 ♂, 5 ♀♀) are open to suspicion in view of the same labelling on another Brazilian species (see *Oncopus trans-*
- boeta.* *pecta*, below). — ab. **boeta** Mabilde. Borders of hindwing broadened, longitudinal streak of forewing truncate at its distal extremity. Porto Alegre, recognizably though crudely figured without a cited authorship, thus in effect as a new species, though I have some unpublished evidence that it was probably a misreading of *laeta* (Walk.), between which and *isis* some inexplicable confusion at one time prevailed (see under *Micropus* above).
- alegrensis.* — **alegrensis** Strand, also from Porto Alegre (1 ♀), is presumably a further aberration of *isis*, but was published as a variety (? race) of *quicha*; palpus long (in *isis* ♀ it is at least somewhat longer than in *isis* ♂), abdomen not yellow laterally, yellow area of hindwing distally not concave (between 3rd radial and 1st median), costal black border as strongly developed as hind border; rather larger than typical *quicha* (length of a forewing 19 mm).
- dubia.* **A. dubia** Schaus (= *isis* Prout olim, err. det.) (17 h) differs from true *isis*, of which I have been inclined to suppose it a form, in the lack of the yellow costal streak of the hindwing, which is merely indicated by a small mark at the extreme base. On an average the black border of the hindwing is narrower. Venation more variable, the 5th subcostal or the 1st radial, at times both, strongly inclined to arise from the areole. Best known from the provinces of Rio Janeiro and Santa Catharina; type from Corcovado, where *isis* also occurs.
- stenochora.* **A. stenochora** Prout (= *approximans* Walk., part., err. det.) (17 h). Evidently near *dubia*, but readily distinguishable, notably by the venation: forewing with areole exceptionally narrow, sometimes almost suppressed, discocellulars oblique and bent, 2nd radial arising near (sometimes close to) the 3rd. ♂ with antenna shortly ciliated, hindleg very short and slender, tibia with a pencil and 1 long spur. Proximal yellow patch of forewing narrower, confined between median and 2nd submedian. Underside of abdomen with a longitudinal white line: of forewing with a yellow streak in proximal part of cell; of hindwing with no yellow at base of costa. S. E. Brazil, founded on a ♀ from Minas Geraes and 2 without locality; a ♂ in the Oxford Museum, from Espiritu Santo, agrees perfectly.
- chibcha.* **A. chibcha** Schaus (17 h). A smaller species, with the proximal part of the costa of the hindwing more broadly yellow. The distal border of the hindwing in the ♂, which on the upperside narrows near the anal angle, suddenly becomes pale yellow towards the fold on the underside. Distributed from Peru (the type locality) to Argentina and S. E. Brazil. This must, according to the structural characters and the given range,
- tenuis.* be the "*osiris* Cram." of BURMEISTER, though it is a somewhat surprising misidentification. — ab. **tenuis** Warr. Dark subcostal band of hindwing reduced to a slight streak at base of cell, distal border also narrowed, especially at its extremities. Intermediates occur.
- basina.* **A. basina** Bsd., given as from Guatemala (certainly in error) and Venezuela (very probably in error), is almost certainly merely bleached *castina*. His "Venezuela" ♂ is extant and is unusually large, though only a very little larger than the extreme known elsewhere (a ♂ from Patino Cue, expanding 37 mm). It is just
- castina.* possible, therefore, that there is really a larger race in Venezuela. — **castina** Bsd. (= *semidivisa* Warr., eion *Druce*, *cuneifera* Warr., *dentigera* Stgr., MS.) (17 i). Differs from *chibcha* chiefly in the black prong between the median branches of the hindwing; ♂ pectinations I think rather longer. Known range: Cuzco to Goyaz and southward to Entre Rios, Argentina.
- gracillima.* **A. gracillima** Warr., a ♂ from Sapucay, Paraguay, expanding 27 mm, has approximately the same forewing markings as *durnfordi*, but of a much paler yellow, the outer transverse streak of the forewing shorter

and still narrower, the hindwing with only the borders blackened, that of the abdominal margin ending in a point before reaching the base, that of the costa beneath confined to the distal third; a few dark scales on the medians suggest remnants of the longitudinal mark of the *basina* hindwing.

A. durnfordi Druce (17 i). Easily recognized by the form of the yellow markings of the forewing and the broad, complete longitudinal streak of the hindwing. Generally smaller than the rest of the similar species. A southern form, known from Argentina, Paraguay and Brazil. The type was sent to DRUCE from Buenos Aires, but I have no knowledge of further material from so far south. — ab. loc. (?) **attenuata** Warr., from São Paulo, has the outer yellow band of the forewing less narrow and rather straight-edged, the longitudinal streak of the hindwing in the type tapering posteriorly, in one aberration not quite reaching the black border. Specimens from Nivac, Matto Grosso, show more resemblance to this form than to the name-type.

A. triradiata sp. n. (17 i). 37 mm. Dusky brown (perhaps blacker when quite fresh), the markings apricot yellow inclining towards yellow ochre; spots on outside of coxae and a lateral stripe on abdomen ochre. Forewing with a submedian streak, pointed at both ends, its proximal point between the bases of median and 2nd submedian, its distal on the fold 4 mm from termen; a slightly sinuate, oblique transverse band just outside the cell, 2—2.5 mm wide, from costal to within 2 mm of midtermen. Hindwing with divaricating streaks on the two folds (not quite reaching base or apex), the anterior commencing as a point and widening, the posterior almost uniformly about 1 mm wide, except at its extreme base; costa narrowly yellow proximally, especially beneath. Near Ambato, Ecuador (R. P. IRENÉE BLANC), 1 ♀ in the British Museum.

A. quadriradiata Weym. (16 k). Still more divergent in that even the second band of the forewing is almost longitudinal; the shortened hindwing may show some relationship to *vespertina*; colour similar, or even more tinged with reddish. The unique type is a ♀, from the primaeval forest of Pozuelos, not far from Babahoyo (W. of Riobamba).

A. subdichroa Dogn. (17 i). “28 to 31 mm.” The yellow colour deep (in the rather small specimens from the Peruvian Amazons which I provisionally refer here almost orange), the markings much as in *durnfordi*, but with the black longitudinal streak of the hindwing at the 2nd median. Face black (in *durnfordi* and *dichroides* predominantly whitish). “Thorax with a yellow central line” (DOGNIN). Abdomen beneath white, laterally with a yellow line (*dichroides* has also a black line between the yellow and the white). Pectinations very short (DOGNIN calls them crenulations, but in the above-mentioned specimens, as in *dichroides*, true pectinations are certainly present). The originals were 4 ♂♂ from S. Ecuador (Loja and Numbala River).

A. dichroides Prout (= *dichroa* part., auct., nec Perty) (17 i). Outer patch of forewing less narrow than in *subdichroa*, proximal patch on the whole more elongate; for some further distinctions, see above. Peru and Bolivia. The type was purchased as from “S. Brazil” but I now suspect this to have been a dealer’s error. It differs from *dichroa*, as figured and described, in its smaller size, the shape of the markings and probably the short palpus.

A. sciaulax sp. n. (= *dichroa* part., auct., nec Perty) (17 k). Size of *dichroa*, but apparently more slenderly built, the ♂ abdomen elongate, beneath dirty whitish in its posterior part. Colouring of body otherwise about as in *dichroa*; outer spot of forewing differently shaped, longitudinal streak of hindwing shaped more as in *matutina*. The underside, which in *dichroa* is said to be like the upper, distinctive: hindwing with yellow costal streak well developed, anterior and longitudinal stripes united by dark shading as far as the end of the cell, a further dark streak running along and in front of the fold, so that of the yellow ground-colour there remain only the broad curved spot from the discocellulars outward, a small isolated subterminal spot on the 2nd median and a thick line from base in front of the fold, dying out before termen. Bolivia, the type ♂ from Cochabamba (P. GERMAIN) and a second from “N. side of the Cordillera de Cochabamba”, both in the British Museum; another with good data in the Tring Museum (Charaplaya, SIMONS); other ♂♂ from GERMAIN only labelled “Bolivia”, but probably topotypical.

A. malanciata Strand. a ♂ from “Malanciata” (sic). Peru, differs from *matutina* in its longer abdomen, in the lack of the projecting dark mark on the 1st median in the yellow spot (but this is inconstant in *matutina*) and especially in the lanceolate streak of the hindwing, with its end not reaching the black border, only connected therewith by irroration along the 2nd median; the antenna “seems a little thinner” and the anal tuft more expanded beneath than above (in *matutina* vice versa). I have hitherto endeavoured to fit this description to aberrations of *matutina* with the black streak tapering distally, but the length of the abdomen points rather to a near relative of *sciaulax*; if the forewing agrees in shape with that, and the costa of the hindwing in colour, the two might even be races of one species.

A. dichroa Perty (16 k) is unknown to me and may be, as I formerly supposed, an aberration of *Cyilopoda claudicula* but the type ♂ came from the Rio Negro (Amazons), which is outside the known range of that

species; if, as is indicated, the 3rd joint of the ♂ palpus is elongate, *Cyllopoda* would be the probable genus, but the aspect is in some ways rather that of *sciaulax*; anterior yellow streak of hindwing notably broader than posterior. We reproduce the type figure.

- matutina*. **A. matutina** *Walk.* Wings relatively shorter than the average, the distal part of the forewing well rounded. Typically very similar above to *volumnia* ♂, hindwing beneath with costa black to the base, submedian yellow streak above and beneath long, nearly always reaching the base, beneath suffused with vinaceous; outer patch of forewing invaded proximally by a blackish streak at 1st median vein, which, however, is often short, at times wanting. The type, a ♂ from Nauta (misprinted Nanta), Rio Ucayali, is the only specimen known from the locality and seems intermediate between the two best-known races, so that the nomenclature cannot be regarded as final. It has unfortunately lost the tegulae and has the submedian streak of the hindwing narrowed but the rest of the yellow parts well developed. A single ♂ from Hyutamaham, Rio Purus (K. J. *cruciata*. HAYWARD), is also difficult to place. — **cruciata** *Warr.* (17 i), founded on a large ♂ (40 mm) from "Bolivia", without adequate locality. seems to be the oldest name for the race from La Paz (department) and E. Peru, at least to Huanuco. Not extremely variable, the yellow parts well developed and including almost always a spot on the tegula, the submedian streak of the hindwing scarcely ever reduced to a mere line. The type by no means the commonest form, has the black streak of the hindwing forked distally on the medians; our figure, except in size, agrees accurately, although, by any obvious lapse, WARREN places the streak and its fork on veins "2" and "1" (!). — ab. **matutinella** *Strand* (= *matutina* *Strand*, nec *Walk.*) is the commoner form, without the furcation of the longitudinal band, the hindwing above therefore almost exactly like that of *volumnia*. The type ♂ was from Mapiri. A ♂ from Hyutamaham, Rio Purus (K. J. HAYWARD) adds to its range. Aberrations with this band tapering distally may conceivably (though not probably) be the true *malanciata*; see above. — **mayonensis** *subsp. nov.* (17 k). A good series from the OBERTHÜR collection, from Loreto (Moyobamba, Tarapoto, Yurimaguas, etc.), shows a very interesting race. The increase of black colouring in the ♂♂ brings about a quite remarkable parallelism to *nanipennis*, from which they are often scarcely distinguishable except in shape and in the genitalia. Tegula without a yellow spot; submedian streak of hindwing above and beneath linear, the black streak consequently broadened. As type I have chosen a ♂ from Tarapoto, which does not diverge excessively from the preceding races, the submedian streak (line) reaching the base, though *pernigrata*. only very slenderly, the anterior curved patch little reduced. — ab. **pernigrata** *nov.* is the other extreme, the hindwing appearing unicolorous black, though the lens reveals a few yellow scales about the radial fold; forewing with 1st median blackened throughout. — In order to avoid multiplication of names, I call the series of *intermedia*. transitions ab. **intermedia** *ab. nov.* Beginning with those in which the submedian streak of the hindwing is wanting and the anterior one merely a short dash, they show a gradual increase of the latter and then a re-appearance of the former, at first very short or incomplete. — The ♀♀ of *mayonensis* differ less from those of *cruciata*.
- nanipennis*. **A. nanipennis** *Warr.* (17 k). The ♂♂ are distinct from those of *matutina* in the reduction of the hindwing while the forewing remains proportionally elongate apically. Otherwise extremely similar to *m. mayonensis*. Its black is scarcely so intense, the posterior half of the ♂ abdomen beneath shows a tendency to become paler, the long hair on the upperside of the hindwing posteriorly is more copious. The genitalia have differently shaped valve and saccus from *matutina*. ♀ hard to distinguish, the black border of the hindwing generally broader. Ecuador: Sarayacu (common); also (?) Rio Cachiaco (affluent of Rio Huallaga), one only. The name-type corresponds approximately to ab. *intermedia* of *matutina* and has the darkening of the 1st median *pernigrata*. of the forewing complete. — ab. **pernigrata** *nov.* has the hindwing almost entirely black.
- vespertina*. **A. vespertina** is nearly always distinguishable, at least in the ♂, by the point of origin of the 5th subcostal of the forewing, which, though variable, arises from the areole instead of from its apex or the stalk of the 2nd—4th; very commonly its base is actually much nearer to the 1st radial, at times connate or even stalked. The ♂♂ and to some extent the ♀♀ are known by the large blackish proximal area of the hindwing beneath. Outer patch of forewing considerably narrower than in the 4 preceding species, more as in *dichroides*. Otherwise strongly variable or embracing more than one structurally indistinguishable species. Costal margin of hindwing narrowly yellow, even in the most blackened forms. Most are found in the same areas, in and near Cundinamarca. — **vespertina** *Walk.* (17 k). Rather deep orange, the black on the upperside of the hindwing extended, and with streaks connecting it with the black distal border. Bogotá (type) and the Upper *osera*. Amazons. — ab. **osera** *Bsd.* was said to come from Honduras and Mexico, but this is highly improbable. A specimen from BOISDUVAL's collection (labelled "Mexico") shows the form without connecting rays between *hypocyanea*. cell and border of hindwing and this is borne out by his description. Known from Bogotá. — ab. **hypocyanea** *Warr.* (17 k), also from Bogotá (type), and from Cananche, Cundinamarca, is a yellow (not orange) development of *osera*, with the black of the hindwing a little further reduced. A slight modification, with a slender black extension along the 1st median as far as the black border. recalls on the hindwing the *matutina* group.

Muzo. — ab. **apolyta** *ab. nov.* Black patch of hindwing wanting on the upperside, merely indicated by a slight *apolyta*. greyish suffusion, as in subsp. *josephi*. Type a small yellow ♂ (from Bogotá) in the British Museum. — ab. **reducta** *Feld.* (16 k) shows the opposite extreme, the hindwing black with the exception of the narrow posterior *reducta*. streak and a tiny dash distally to the cell. Bogotá. — **josephi** *subsp. nov.* (17 k). Much like large ab. *apolyta*, *josephi*. but with the black border of the hindwing narrower, the yellow patches of the forewing respectively longer (the longitudinal one) and broader (the subapical). Costa Rica, several specimens, the type from San Jose (H. SCHMIDT) in the British Museum. — **velata** *Druce* (16 k) is another large form and it is just possible that *velata*. *josephi* may have to sink to it. Rather brightly coloured, the black border of the hindwing broad (2 mm), its costal part proximally widened so as to encroach on the anterior part of the cell (the only known ♀ of *josephi* shows no such encroachment). Volcan de Chiriqui, only the type ♀ known. — **nigricellulata** *form. nov.*, another *nigricellulata*. unique ♀, probably represents an intermediate race between *velata* and *vespertina*; nearest the former but smaller (33 mm) and with the cell of the hindwing completely blackened. N. Colombia: Sabanilla, west of the town, below 150 feet (G. B. LONGSTAFF, see his "Butterfly Hunting", p. 259, *Flavinia*). Type in the British Museum.

25. Genus: **Formiana** *Druce*.

Face prominent. Palpus moderate. Antenna of ♂ bipectinate. Hindtibia of ♂ with a long hair-pencil, spurs wanting; tarsus short. Forewing of ♂ with a large, deep, angular terminal excision; cell about $\frac{1}{2}$; areole simple. ♀ unknown. Type and sole species: *maenades* *Druce*.

F. maenades *Druce* (= *meander* *W. F. Kirby*) (17 a). Conspicuous by its large size and erratic shape *maenades*. but with the colour-scheme and pattern of the allied genera. Bolivia (type) and Peru.

26. Genus: **Oncopus** *H.-Sch.*

Face smooth. Palpus rather short. Antenna of ♂ lamellate, with fascicles of cilia. Abdomen of ♂ long and pointed, of ♀ moderate, thickened at the end. Hindtibia of ♂ much thickened, with hair-pencil and 1 terminal spur; of ♀ with 3 spurs. Cells long; areole of forewing simple; 2nd subcostal of hindwing shortly stalked. Probably a mere colour-section of *Myrice*; only two species known, or possibly only one; in any case not, as HERRICH-SCHAEFFER suggested, sexes.

E. citrosa *Hbn.* (= *aurata* *Schaus*, M. S.) (16 i). The pale central patches large, the veins (except sub- *citrosa*. costal and median of forewing) not darkened. Rio de Janeiro and São Paulo; the original indication of "Java" of course erroneous.

E. transpecta *Hbn.* (= *transepta* *H.-Sch.*) (16 i). Generally somewhat paler yellow, but best distin- *transpecta*. guished by the smaller clear patches and the strong dark vein-dashes of the distal area. Distribution as in *citrosa*, also a short series labelled Popayan, doubtfully correct; I cannot elucidate the "St. Thomas" given by HÜBNER. — ab. (?) **hapala** *nov.*, possibly representing a third species, certainly a third form, is a small ♀ *hapala*. from Rio Janeiro (ex coll. OBERTHÜR), more unicolorous yellow, with none of the veins outstandingly darkened, the clear central patches still further reduced in size, not sharply outlined.

27. Genus: **Myrice** *Walk.*

General characters as given under *Oncopus*. The ♂ hindtibia (at least in a dissected and carefully examined *inaequalis*, which WALKER constituted type of yet another genus, *Asiona*) with two short spurs; but as I have found, besides the one spur, also a small button-like process in *Oncopus*, even this distinction does not amount to much; in the ♀ the proximal spur is vestigial or entirely wanting. The yellow colouring is replaced by grey, except in part on head and body. Few species and never common, but distributed from Costa Rica to Bolivia and Matto Grosso.

M. nitida *Warr.* (16 i) is very distinct from the following forms in the presence of the pale central spots. *nitida*. Costa Rica and probably Panama.

M. transiens *Walk.*, the type of the genus, is less unicolorous than the two following, the forewing *transiens*. broader in proportion to its length than in *inaequalis*, a white spot present on the inner margin of the forewing. Described from Venezuela, known also from Trinidad, Taboga I. and the Amazon.

M. steinbachi *Prout* (16 i). Wings shaped nearly as in *transiens*, but uniformly grey as in *inaequalis*, *steinbachi*. the veins scarcely darkened. Hindtibia shorter than in *inaequalis*, one of the spurs reduced to a knob (a further link with *Oncopus*). Antennal cilia less long than in *inaequalis*. Prov. del Sara, E. Bolivia: Santa Cruz, 2 ♂♂ in the British Museum.

inaequalis. **M. inaequalis** Walk. (16 i) has already been differentiated above from the two preceding species. The glossy light mouse-grey colouring is only varied by the orange of the vertex and thorax above (scarcely discernible in WALKER's somewhat worn type from Ega) and a slight darkening of the veins. A good series of ♂♂ was collected by COLLENETTE at Burity, N. E. of Cuyaba. Also known from S. Peru.

M. cinctata. An isolated species, which may provisionally form a second section of *Myrice*; in any case having no connection with *Eudule*, to which DOGNIN originally referred both his ♀ type (*cinctata*) and his *neorina*. HAMPSON, in some MS. notes on the types, first associated the two and gave the correct subfamily reference and the following structure clues for the ♂: Antenna serrate and fasciculate; hindleg aborted, tibia dilated with fold and tuft, no spurs, tarsus aborted and bent out at right angle. Forewing with vein 10 from 11, anastomosing with 8. 9. Hindwing with 8 shortly anastomosing with the cell, 6. 7 stalked, 5 central. Subsequent correspondence with M. DOGNIN elicited the further information that the ♀ was 2-spurred and that "in general aspect *neorina* and *cinctata* seem to fit quite well in the vicinity of *inaequalis*", though rather larger; he admitted that they might probably form a single, sexually-dimorphic species but was not entirely convinced.

cinctata. — ♀-f. **cinctata** Dogn. "Fulvous, the veins brown, a straight streak bounding the cell, a broad brown outer border, broader at the apex of each wing. Underside as upper, but yellow, not fulvous. 25 mm." — ♂-f. **neorina** Dogn. "Base of both wings up to discocellular ochre yellow (shade of *orilochia* Druce [*Eudule*]), then blackish, the veins black. Underside paler yellow (not ochre), with a small discal point, the yellow more extended than on upperside, roundedly on forewing, prolonged on hindwing almost to anal angle but the apical part more widely blackish; veins scarcely blackish. 27 mm." Evidently mimetic and perhaps really not so excessively rare as it has seemed, though still wanting in our British collections. Both types came from Loja.

28. Genus: **Trichosterrha** Warr.

The American representatives of the *Somatina* group (or those which are at present regarded as such) have not yet been reduced to any very definite system. Some valuable clues have been found in the genitalia, but until many hundreds more species have been studied, it is impossible to base a new classification on them. Here, as throughout the *Sterrhinae*, I am following the sequence of the "Lepidoptera Catalogus", which has utilized most of the generic names hitherto established and has recorded a preliminary endeavour to group nearly allied species together. Of a few genera — and the present one is a case in point — next to nothing is yet known taxonomically. It was proposed for *olivata* Warr., considered to be a development of *Sterrha* and diagnosed only by two ♂ structures: Hindtibia thick, clothed on the innerside with a tuft of thick hair, 1st segment of tarsus swollen pouch-like, and as long as the other 4 together; antenna with long pedicillate fascicles of cilia, ciliated themselves laterally and apically. Two other species, known only in the ♀, were conjecturally associated with it, but have since been removed; one, on the other hand, has been added by myself. I call the ♂ antenna bipectinate, with moderate, slender branches and find only 1 true spur on the ♂ hindtibia, while the ♀ always has 4 (not 2, as WARREN indicates). The areole is double, with the 2nd subcostal arising from the cell. The hindwing has the 2nd subcostal stalked, but never very long-stalked, the 1st median separate.

olivata. **T. olivata** Warr. (15 c). Face, palpus and tibial tuft black. Perhaps the most distinctive points in the wing-markings are the sinuous white outer line and, on the forewing, its reddish and black subapical suffusions. Sante Domingo, Carabaya, S. E. Peru; also (1 ♀) Baeza, E. Ecuador.

apiozona. **T. apiozona** Prout. Described as a *Hamalia*, but evidently quite close to *olivata*; though the ♂ is still unknown. Hindwing with the 2nd subcostal very shortly stalked. Postmedian of forewing more strongly produced at 1st—3rd radial, a greyish subterminal band above (only conspicuously dark at posterior end), becoming on the underside a strong dark terminal band. Hindwing rather narrow, distal margin almost straight from 1st radial to near tornus. Rio Janeiro. 2 ♀♀.

29. Genus: **Xystrota** Hulst

This genus, in which, notwithstanding its different shape and markings, I at one time inclined to merge *Trichosterrha*, has similar palpus, ♂ antenna and venation. *Xystrota*, on the other hand, has the ♂ hindtibia slender, spurless, the tarsus simple, less short than the tibia. Unless it might be sunk to *Acratodes* (as has been done in effect by BARNES and McDUNNOUGH, though they do not employ GUENÉE's name), *Xystrota* must be considered as containing only one species.

rubromarginaria. **X. rubromarginaria** Pack. (= *ferruminaria* Zell., *rubromarginata* Pack.) (15 c). This well-known North American species was for many years known as *hepaticaria* Guen., but this has been shown to be a complete misidentification (see *Scelolophia*). It is moderately variable in depth of colour, the median area commonly more or less darkened, sometimes quite band-like. Described from California, *ferruminaria* from Texas, but

widely distributed in the States and reaching the south of British Columbia. — **volucrata** *Hulst*, founded on *volucrata*. a single ♂ from Missouri, is listed as “the dark form”, but probably not geographical. Characterized by the “purple brown” median band. — **erythrata** *Hulst*, also founded on a single specimen (a ♀ from Colorado), is *erythrata*. more uniformly coloured, “bright chestnut red”, the fore- a little darker than the hindwing. To judge from a variable Colorado series before me, it too is only an aberration, but the name may ultimately be required for a separable subspecies.

30. Genus: **Acratodes** *Guen.*

Generally more glossy-winged than *Xystrota*, the ♂ antenna with fascicles of cilia, the ♂ hindleg more or less aborted, with strong hair-pencil. Venation similar, the 2nd subcostal of the hindwing, however, at times from the cell. The same vein of the forewing is also variable, even in the most typical group: from the cell in the genotype (*phakellurata*), *virgota*, *intaminataria* and perhaps others; stalked with the 3rd—5th in *roseicosta*, *davisi*, *cazecca*, etc. Perhaps not sharply differentiable from true *Hamalia*. Most of the species are, broadly speaking, Caribbean, but a few extend far southward.

A. noctuata *Guen.* (15 c). Only known to me from the originals, a ♂ and 2 ♀♀. Hindlegs lost in the ♂; *noctuata*. 2nd subcostal of forewing connate or just stalked, of hindwing stalked, though variable. The “greenish” tinge mentioned by GUENÉE is not very obvious, but the almost straight 2nd and 3rd lines, separated by a narrow pale space, are sufficiently distinctive. Haiti.

A. virgota *Schaus* (15 c). Vertex and upper part of face roseate. Wings very glossy, in worn specimens *virgota*. looking almost as unicolorous as in *phakellurata*, but when fresh showing 3 lines on fore- and 2 on hindwing. Jamaica, perhaps a race of the following. — ab. **fumata** *nov.* has the whole forewing above and about half the *fumata*. hindwing smoky red-grey. 1 ♀ in the British Museum.

A. phakellurata *Guen.* (15 c). Shining white, without markings, except the weak terminal dots. Vertex *phakellurata*. rosy. Only known from Haiti.

A. intamiataria *Möschl.*, of which I have access to no specimens, is probably another race or represen- *intamiata-* *ria*. tative of the same group; though no mention is made of rose-colour on the head, the “finely rust-red costal edge” of the forewing beneath is mentioned. Lines about as in *virgota*, terminal dots or slight line perhaps better developed. Porto-Rico.

A. suavata *Hulst.* I have not this *Acratodes*, but according to McDUNNOUGH it is very close to *roseicosta* *suavata*. (15d), differing chiefly in the unbroken terminal line and somewhat more regular subterminal. From HULST’S description I gather that it must be at least as close to *fusaria* (15 d), perhaps identical, though the postmedian line above may be more distinct and more wavy. The egg and larva have been described by DYAR. Egg elliptical, one end smaller, the other (the micropylar) scarcely flattened; reticulations strongly raised, thick; colour delicate blue-green, with some red specks. Larva slender, in 1st stage white with broad black transverse bands, which give place in the later stages to double, bent, interrupted dorsal line and series of dorsal and (smaller) subventral spots or bands. Fed on *Randia aculeata*, pupating in the ground after the 4th instar. S. Florida: Palm Beach, probably a succession of broods. — **fusaria** *Hmps.* (15 d). Forewing with 2nd subcostal stalked, *fusaria*. though very shortly. Less glistening white (especially beneath) than *phakellurata*, costa beneath more strongly red, face almost wholly red; terminal dots beneath developed into a continuous line. Bahamas: Nassau, etc.

A. davisi *Grossbeck* is also unknown to me. According to its author it is very close to *suavata* but paler *davisi*. and lacking much of the red colour described for that species. Its white ground-colour is not quite pure and it has on the forewing 3, on the hindwing 2 slight dusky lines, besides the terminal and a dusky tinge on the fringes. Dr. LINDSEY wrote me that it is certainly distinct from *roseicosta* in its very dark, dull reddish face and its complete and rather heavy terminal line, almost as heavy on the hind- as on the forewing; subterminal line much more regular than in *roseicosta*, but in the latter species this and other characters much too variable to be of much use individually for differentiation. Florida.

A. roseicosta *Barnes & McD.* (15 d). Stalking of 2nd subcostal variable in length, in one example out *roseicosta*. of 10 examined by LINDSEY reduced to a point. Face whitish, sometimes (at least in the ♂) tinged with brown, the rosy colour on palpus, costa of forewing beneath, etc., not intense, strongest in the ♂♂. Markings very variable in strength, sometimes almost wanting; terminal line weak and interrupted, both above and beneath. Texas. It was suggested that it might well be a race of *suavata*; from the whiter colouring, especially of the ♀, I was inclined to say “or rather, of *cazecca*”; but perhaps the whole group (*phakellurata* to *cazecca*) is scarcely more than a single “superspecies”.

A. cazecca *Druce* (15 c), founded on 2 ♀♀ from Jalapa, also known from Vera Cruz, Guatemala and *cazecca*. perhaps Costa Rica, is the only Central American representative of the group yet known. Rather larger; face

white; forewing with 2nd subcostal stalked; hindwing less rounded, though I have seen no example in which it is so strongly angled as in the type figure; lines typically more distinct, the postmedian very strongly sinuous. Only ♀♀ known to me; very variable, unless more than one species are mixed.

- oblinataria.* **A. oblinataria** Möschl. An inconspicuous little species, perhaps separable into several subspecies, but I have not been able to bring together many specimens, except of *scintillans*. Hindtarsus of ♂ longer than in *praepeditaria*; the postmedian line, when present, is similarly sinuous, but does not run out so close to termen behind the 3rd radial; ground-colour grey or slightly brownish, without cinnamon tone. The originals, 2 ♀♀ from Porto-Rico, are white-yellow, densely irrorated with greenish-grey-yellow, entirely without markings.
- bimaculata.* A poor ♀ from Jamaica apparently agrees. — ab. **bimaculata** ab. nov. has conspicuous brown or red-brown costal spots indicating the position of the (obsolete or extremely weak) median and postmedian lines. Known to me from Jamaica (type ♀), St. Vincent and Grenada. — **scintillans** Warr. (15 d) is a more brownish-tinged race, described from British Guiana, with the lines traceable throughout, though slender and weak (especially in the ♂) and not arising from conspicuous costal spots. Specimens from Venezuela (chiefly Caracas) seem more variable, sometimes more strongly marked. — ab. **fasciata** ab. nov. Median area of forewing darkened into a conspicuous band. A good ♀ in the British Museum, from Caracas. The only *oblinataria* which I have seen from the Bahamas (a ♀ from Nassau) nearly resembles this, but may prove attachable to the name-typical or to a third subspecies.
- praepeditaria.* **A. praepeditaria** Möschl. (= *semisignata* Dogn.) (15 d) more approaches the *adela* group, but has the postmedian line more distally placed and no subterminal shadings. Hindwing not so entirely devoid of markings as in *oblinataria* and without the peculiar dense irroration. Venezuela (DOGNIN's type locality) and the West Indies; MÖSCHLER's type ♀ from Porto-Rico. — **tumidaria** Möschl., also from Porto-Rico, is merely a less small, more weakly marked ♀. — **flexifascia** Prout (15 d) is rather large, with a well-developed narrow median band on the forewing, the other markings of that wing weak. Buenos Aires, 1 ♀; its geographical isolation suggests that it may possibly be an accidental introduction.
- adita.* **A. adita** sp. n. In colour and markings closely like a larger *praepeditaria* (23 mm) (15 d). Hindleg similar; fascicles of cilia less long; stalking of 2nd subcostal of hindwing extremely short. Distinct in the presence of a (weak) subterminal shade on the hindwing and near the tornus of the forewing above and (much stronger) near the apex of the hindwing beneath; forewing with a black-mixed subbasal line in and behind the cell. From *delila* easily separated by its paler colour, more distally placed postmedian, underside only rosy at costa of forewing, etc.; in that species the subapical spot beneath is rosy, not fuscous. Orosi, Costa Rica (A. H. FASSL). 1 ♂ in the British Museum.
- psecasta.* **A. psecasta** sp. n. (15 d). Head red-brown. Hindfemur with strong tuft of purple-red hair; tibial pencil long. tarsus rather long. Forewing with 2nd subcostal from cell; base, costa, termen and the long cell-mark purplish grey, the rest whitish, with grey veins and dense coarse orange-brown strigulae, composing about 12 or 13 irregular interrupted lines; of the lines the antemedian and median are straight, the postmedian irregularly sinuous. Hindwing more weakly marked. Underside paler, glossy, the postmedian present, rather weak. Matto Grosso: Burity. 30 miles N. E. of Cuyaba. 2250 feet. 30 June 1927, at light (C. L. COLLENETTE), 1 ♂ in the British Museum.
- adela.* **A. adela** Dogn. (15 d). The most widely distributed of the group. The differentiation of the nearest allies is given under their headings; it and the two following show a slight structural difference from most of the preceding in that the 2nd subcostal of the hindwing is not or not appreciably stalked. The type was from Loja; the already known range is from Costa Rica to Bolivia in the west and from Trinidad to Rio Janeiro in the east. — **leda** subsp. (? sp.) nov. is probably a race of this species, or possibly of *delila*. Colouring a little deeper, the red shading predominating. Forewing with proximal area nearly as in typical *adela*; postmedian line commencing about as in that, the angle at 1st radial not so acute as in *delila*, the inward curve between it and the central lobe pronounced. the lobe (with corners on 3rd radial and 1st median) not quite so near the termen as in *adela*; the white line outside the postmedian slight and indefinite, the brown cloudings in distal area rather dark and suffused with reddish, the whitish apical patch conspicuous; terminal line replaced by a weak grey shade; the brown proximal part of the fringe deepened and reddened. Hindwing more uniformly reddish than in *a. adela*, the white lines — especially the postmedian — weakened, the light-brown subterminal band deepened and reddened; termen and fringe as on forewing. S. Brazil: Santa Catharina, a ♀ from the OBERTHÜR collection.
- delila.* **A. delila** Schaus (15 d). Rather less strongly glossy; redder, the median area broader, etc. Honduras to Panama (type from Costa Rica); also in French Guiana.
- pulida.* **A. pulida** Dogn. (15 e). Generally considerably larger than the two preceding; colour a more purple-

reddish, the very broad median area of the forewing projecting much more strongly, receding from the termen in its anterior part, so that its author even likened it to *admirabilis* rather than to *adela*. Panama to Bolivia, described from Loja.

A. exaeta *Prout* (15 e). Larger than *pulida*, the forewing with a more rusty admixture and with pale *exaeta*. costal margin beginning to recall *admirabilis*. Markings not very strong, not very irregular; the elongate, rusty, dark-spotted cell-mark of the hindwing conspicuous. La Oroya, Rio Inambari, the type ♂, and Quinton, Carabaya, 1 ♀; no others known.

A. admirabilis *Oberth.* (15 e). Again considerably larger, very distinct in shape and markings. Hind- *admirabilis*. wing beneath with a dark fuscous subterminal band, which continues as a small tornal patch on the forewing. Ecuador to Bolivia, the type from Peru. — **brasiliana** *subsp. nov.* Distinguished by its deeper colouring (es- *brasiliana*. pecially in the ♀♀) and the more extended pale borderings of the forewing; in particular, the postmedian line begins to bend proximad somewhat earlier and the enlarged pale tornal space is cleaner. On the underside the fuscous tornal spot is correspondingly broadened. Santa Catharina: Jaragua do Sul (F. HOFFMANN) a good series in the Tring Museum. A worn ♀ from Alto da Serra, São Paulo, is similar.

A. angulata *Schaus* (15 e) differs in its irregularly shaped wings, the hindwing with a prominent tooth *angulata*. at the 1st radial. The pale part of the hindwing is more hyaline. Costa Rica (type), British Honduras, Panama and Ecuador.

A. grays *sp. n.* (15 e). At first sight closely like a small, poorly coloured *admirabilis*. Distal margins *grays*. slightly more convex, especially that of the hindwing, which even shows a faint angle at the 1st radial, foreshadowing the tooth of *angulata*. Forewing with the costal part more greyish, less contrasting, the markings almost reaching the costal edge, the median streak darker and less oblique than in *admirabilis*. Hindwing beneath with the subterminal band much less uniform in width, anteriorly 2 mm, reducing to less than 1 mm behind 3rd radial, very slightly widened again behind 2nd median. Matto Grosso: Melguira, 10 miles S. of Diamantino, 2000 feet, flying in original forest at night; type ♂ in the British Museum.

A. vitticostata *Warr.* (15 f) seems to fit, by its structure, into this genus. Shape an exaggeration of *vitticostata*. that of *angulata*. Its very small size, bright colour and pure white cell-spot of the hindwing are noteworthy. Trinidad, the Guianas, the Amazon and into E. Peru; type from French Guiana. — **versicolor** *subsp. nov.* (15 f). *versicolor*. A trifle larger, with more purplish reflections; the broad costal border white in its anterior part, buff in its posterior; broader dark shades than in *vitticostata*; the sinuous dark-red outer line of the forewing (from costal border to 2nd median) replaced by a blackish one. Muzo, Colombia (A. H. FASSL), 10 ♂♂; type in British Museum. Perhaps a species.

A. griseocostata *Warr.* (15 f). Closely similar, but with almost rounded hindwing; costal border of *griseocostata*. forewing more narrowed distally, scarcely reaching apex, its distal part more yellow; distal border scarcely separated by any dark shade from the ground-colour. W. Ecuador.

A. aphilotima *sp. n.* (16 a). Head and body much as in *admiranda*, hindleg not quite so short and weak, *aphilotima*. tarsus about as long as tibia, not hairy. Belt at base of abdomen purer white. Forewing with the cinnamon colour rather less bright, the narrow pale cell-mark scarcely dark-edged; a pale curved outer line succeeded distally by an irregular, narrow area of the groundcolour. Hindwing not hairy beneath; its scheme of markings more as in the *adela* group, though with the pale postmedian line much nearer the distal margin, etc. Underside without markings. Matto Grosso (P. GERMAIN), 1 ♂ in the British Museum.

31. Genus: **Hamalia** *Hbn.*

The few species which are left here, after the removal of my genus *Ptychamalia* (see below) and a few other obviously dissonant elements, still show considerable structural variation, though the pattern is pretty uniform and so different from the generally glossy *Acratodes* that it would be a mistake at present to sink the latter here. Colouring brown, the pattern simple, but with dark spots at midtermen and tornus of forewing, the shape simple except that in the genotype (*delotaria*) there is a bend at the middle of the margin of the hindwing. Hindtibia of the ♂ short, spurless, of the ♀ with 4 spurs or with 3 only. Abdomen of ♂ more or less tufted laterally. Forewing with areole double, 2nd subcostal arising from cell; hindwing with 2nd subcostal connate to quite shortly stalked. The genitalia of several so-called *Hamalia* were examined many years ago in collaboration with Messrs. PIERCE and BURROWS and revealed wide disparities; after the elimination of *Ptychamalia*, with its simpler, more *Sterrha*-like structure, and a few species with bifid uncus, which went naturally into *Semaepopus*, there remained those with "abnormal" genital structures, still not very homogeneous, but with complicated developments of the 8th segment associating them more with the *Scopula* group than with *Semaepopus* or *Sterrha*. These were rather arbitrarily assigned to *Hamalia* or *Crypsityla* pending further revision.

As the proximal spurs of the ♀ hindtibia are obviously not of generic importance here, I have now made a slight further change, restricting *Crypsityla* to the 2 or 3 species which have the specialized scale-patch on the ♂ hindwing.

- delotaria.* **H. delotaria** *Hbn.* (15 f). HÜBNER's figure, of a ♀ from Surinam, seems much too brightly coloured (too yellow, the "sanguineous" markings brighter than in any specimen which I have seen), but otherwise good. Face red, fringes rosy, the reddish costa and lines normally much irrorated with blackish. Hindtarsus of ♂ short, the long tibial pencil reaching far beyond it; hindtibia of ♀ with proximal spurs fully developed. Abdomen of ♂ with lateral tufts not strong, excepting the one just behind the tympanum. Forewing with 2nd radial arising much before middle of discocellulars. Venezuela, the Guianas and the Amazon; 1 ♂ also from Coca, Upper Rio Napo. — **ustaria** *Guen.* (15 f) is almost certainly nothing but a small, well-marked ♂ with the head, costal edge and even the subcostal suffusion strongly black-mixed, so that GUENÉE calls their colour "scorched violaceous" rather than reddish. Structure the same, termen of hindwing perhaps slightly less gibbous; apical mark of hindwing slender. Cayenne, 1 ♂.
- tophopleura.* **H. lophopleura** *sp. n.* (15 f), formerly misidentified as *delotaria*, differs in its more rounded hindwing and in several structural characters: palpus and ♂ antennal ciliation a little shorter; hindleg of ♂ with the femur apparently fused to the body, the tibia and tarsus less short than in *delotaria*, stouter, the ♀ tibia with the outer proximal spur short; ♂ abdomen with very large latero-ventral tufts; forewing with 2nd radial more central. Belize, British Honduras, type ♂ in the British Museum. A short series from Orizaba, not perfectly fresh, in the Tring Museum. Possibly a smaller, paler race of *partita*, with the cell-mark of the forewing slender, linear, the markings of the hindwing almost obsolete; but the lateral tufts of the ♂ abdomen are apparently still stronger. The ♀ cannot be compared, as that of *partita* seems to be still unknown.
- partita.* **H. partita** *Dogn.* (15 f). Very much like a larger, broader-winged *Crypsityla micaceata* (f. *bimaculata*) but without the special scale-tuft on the ♂ hindwing; hindwing with the termen somewhat more gibbous (though without the definite bend of *delotaria*), markings rather stronger (the hindwing with 3 lines), the terminal dark line less regular; cell-spot of forewing strong, oval, blackish. Abdomen of the ♂ with strong tufts, approaching those of *lophopleura*. Ecuador to Bolivia, the type from Loja.
- imitans.* **H. imitans** *Dogn.* (15 f). Brighter ochreous than its congeners; median line and cell-spot faint or obsolete. Hindleg of ♂ less short, the tibia approaching the femur in length, the tarsus moderately long, slender; of ♀, according to DOGNIN, in litt., with 3 spurs. ♂ abdomen without strong tufts; genitalia with the valves asymmetrical. Superficially recalls a small *Semacopus bimacula* (11 c), but with many obvious differences. The ♂♂ are fairly common from Ecuador (loc. typ.) to Bolivia; known also from Costa Rica.

32. Genus: **Crypsityla** *Warr.*

Perhaps a section of the preceding. WARREN, in erecting it, says that the ♀ hindtibia has only 3 spurs. I accept this statement, but cannot find a ♀ of the genotype (*quinquelineata*) in any collection here and learn that sex is also wanting from the DOGNIN and SCHAUS collections; that of the very similar *mantaria* has 4 strong spurs. WARREN, however, founded the genus chiefly on the secondary sexual characters of the ♂; forefemur in ♂ with a tuft from base, base of abdomen tufted beneath, hindwing with large tufts of coarse hair beneath, at base of cell. Forewing with 1st subcostal arising rather far proximad, 2nd subcostal from cell or connate (perhaps occasionally stalked), 2nd radial slightly before middle of discocellulars.

- micaceata.* **C. micaceata** *Walk.* (15 g). Named from the copious scintillating scales. ♂ structure much as in *quinquelineata*, but the specialized scale-patch of the hindwing is not overhung with tufts of hair. Widely distributed but scarce; I have seen it from Venezuela (type), Matto Grosso, Bolivia, N. Argentina and Paraguay and 5 from Castro and Rio Paranapanema. The type and a Ciudad Bolivar belong to rather a small, cleaner form, the outer blotch between the radials wanting. — The rest may be known as **bimaculata** f. (? *subsp.*) *nov.* Terminal blotches well developed. Type ♂ in the British Museum, from Sapucay, Paraguay.
- mantaria.* **C. mantaria** *E. D. Jones* (15 g), founded on a ♀ from Castro, is darker than *micaceata*, the scintillating scales less copious; otherwise very similar. The type is in addition larger, but this does not apply to the Ypiranga ♀ here figured, which, on the other hand, is still darker. A ♂ from Rio may be associated with them; but I have begun to suspect that *mantaria* may be the normal ♀ form of *micaceata* and the last-mentioned ♂ an aberration of the same with ♀ colouring.
- quinquelineata.* **C. quinquelineata** *Dogn.* (= *confusaria* *Prout*, ex *Dogn.* MS.) (15 g). Larger than the two preceding, more variegated and with pale costal margin. Much like *Acratodes exaeta*, which lacks the special tufts; darker than that species, forewing with 2nd subcostal from the cell (in *exaeta* stalked). Ecuador (type) to Bolivia. The new name was proposed under the erroneous idea that *quinquelineata* was preoccupied.

C. melanthes *sp. n.* Much smaller than *quinquelineata* (22 mm), the wings differently shaped. Forewing *melanthes*. with termen more oblique, hindwing with costa relatively shorter, termen less convex. Structure similar, the tuft on the hindwing beneath more mixed with black. Both wings with the black cell-mark standing out distinctly (somewhat raised), long-oval, with a few metallic scales, hindwing above with the proximal patch intensely black, somewhat enlarged. Other markings apparently much as in *quinquelineata* but with less (if any) dark cloudings. Maranhao (Miss ORCHARD), a ♂ in the Tring Museum, very worn, but easily to be recognized.

33. $\frac{2}{5}$ Genus: **Scelolophia** *Hulst.*

A good preliminary revision of this genus, under the synonym of *Calyptracome* Warr., was published by DYAR in 1913 and not much advance has yet been made upon it; it is therefore largely followed here. His subdivisions are not absolutely clean-cut, but have been found extremely serviceable. As the secondary sexual characters are manifestly subgeneric or sectional only, and were so recognized by DYAR, no definition has yet been found which will rigidly separate the genus from the 3 preceding, but the small size of the species and their scheme of markings generally show their position; only a few outliers have been added at the head. Most of the ♂♂ have tufts and flaps on the abdomen and those of the typical section have a dense patch of specialized scaling on the hindwing beneath, placed behind the base of the cell, analogous to the hair-tuft in the base of the cell in *Crypsityla*, which could easily be sunk as another section. ♀ hindtibia (as in *Crypsityla*?) sometimes with only one of the proximal spurs present.

A. ♂ hindwing without area of raised scales.

S. (?) laevitaria *Hbn.-Gey.* (= *floridata* Pack.) (15 g). Position quite uncertain, but hardly a *Scelolophia*. Wings narrower, ♂ hindleg short and weak; ♀ hindtibia with 4 spurs, the outer of each pair $\frac{1}{2}$ or $\frac{1}{3}$ the length of inner. Easily known by the ill-defined rosy bands, approximately parallel with the termen. Texas, Florida, Bermuda and perhaps California. The type of *laevitaria* was said to have come from Georgia.

S. uniformata Warr. Only known from the ♂, which is certainly very close to *subroseata*, probably a *uniformata*. broad-winged aberration of the same, but I should like to see better Trinidad material before sinking it.

S. subroseata *Guen.* (= *circumducta* Warr., *inornata* Warr.) (15 g). The most (if not the only) *Scopula*-*subroseata*. like *Scelolophia*, distinguishable by the double areole and the (short) stalking of the 2nd subcostal of the hindwing. Antenna of the ♂ with the fascicles of cilia long; hindtibia moderately long, fairly slender, but with well-developed hair-pencil. Forewing beneath somewhat suffused with vinous or rosy grey. Venezuela (WARREN'S types), Cayenne (GUENÉE'S type), the Amazons and Bolivia; I cannot even see any racial difference in a few from Mexico and Honduras.

S. penumbrata Warr., founded on a ♀ from Dominica, probably belongs here. Hindtibia with 3 spurs; *penumbrata*. 2nd subcostal of the forewing from the cell, that of the hindwing just stalked. Rather smaller than average *subroseata*, more ochreous-tinged, the forewing beneath less rosy; lines less sinuous, terminal less interrupted, with some vinaceous suffusion, which extends as a very narrow terminal band on the forewing.

S. damaria *Schaus* (15 g). Variable both in size (18—24 mm) and markings. The ♂, though among *damaria*. the simpler in structure, shows ochreous hair-scaling anteriorly near the base of the hindwing beneath; ♀ hindtibia with 3 spurs. The two dark median shades at times consolidate into a band; still more distinctive are the midterminal and tornal dark spots of the forewing. Described from São Paulo, but extends into Parana and Paraguay.

S. roseoliva Warr. (15 g). DYAR had not seen the type of this species, but was correct in assuming it *roseoliva*. to be near his *carnearia*. It differs from *phorcaria*, which inhabits some of the same islands, in that the costa of the forewing returns to a rosy colour at the costal edge (more broadly on proximal part) and in lacking the specialization of the ♂ hindwing and one proximal spur from the ♀ hindtibia. St. Vincent. Known also from Grenada and perhaps Tobago to Dominica. — **carnearia** Dyar, from Jamaica, is at most a subspecies, perhaps *carnearia*. a synonym; the only specimen before me is rather small and of a more definite and uniform flesh-pink.

S. desmogramma Dyar (15 h). Darker than *roseoliva*, more purple. Lines fragmentary especially through *desmogramma*. the centre of the wing. Trinidad and Venezuela to Pará and Pernambuco; type from French Guiana. I am inclined to think that this, rather than the species so determined by DYAR, may be the true *turbata* Walk.; unfortunately it was based on a ♀, and the given locality (Brazil, coll. SAUNDERS) is worthless, as it might have referred to an Amazonian species from BATES or the southern one noticed below.

S. rivularia Dyar. On an average rather smaller than *desmogramma*, not quite so dark purplish, the *rivularia*. lines broad, coarsely wavy, continuous, not dark-edged; an ochreous subcostal streak. Underside whitish,

silky, the forewing broadly rosy in costal region. Panama and Costa Rica, the type series from the Canal Zone. A similar form occurs in West Ecuador (Paramba).

B. ♂ hindwing beneath with dense patch of raised ochreous scales on fold near base.

delectabiliaria. **S. delectabiliaria** Möschl. (= *variabilis* Dyar) (15 h). The type ♀, from Porto-Rico, is rubbed, but I have not been able to find any racial deviation from the Cuban *variabilis*. The reddish tone, pale base and fine lines are characteristic.

hepaticaria. **S. hepaticaria** Guen. (15 h) is only known to me from the original description and OBERTHÜR's figure, here reproduced. According to BENJAMIN close to *crossii*; he does not state wherein it differs, perhaps in the darker colour, especially proximally, and the more distinct pale bands. Maryland.

crossii. **S. crossii** Hulst (= *crossi* Barnes & Mc. D.) (15 h). I have no material of this or the preceding. "16 mm. Reddish violet, base and costa of forewing yellow, basal part mixed with violet, both wings crossed with 3 faint irregular tremulous and angulate lines." Florida. DYAR says it looks like a dark form of *variabilis*, without the tendency to lightening of the ground and calls it dark purple, purplish shaded beneath, the lines dark yellow, broken into separate segments; the discal bars light and distinct; his specimen was a ♀ from Fort Myers. F. M. JONES found the species to be not rare on the Bermudas and bred it from larvae collected on *Lantana odorata*.

phorcaria. **S. phorcaria** Guen. (= *concessata* Walk., *flavicostaria* Möschl.) (15 h). A fairly common Jamaican species and extending to the Bahamas and St. Vincent. GUENÉE's type came from Haiti, the other two from Jamaica. Intermediate between *delectabiliaria* and *purpurascens*, on the whole rather duller. Rather smaller than the latter; shows a similar but less pronounced tendency for the basal and terminal areas to be darkened.

purpurascens. **S. purpurascens** Hulst (15 h). I have only one specimen and must quote DYAR: "Close to *variabilis* Dyar, but larger and brighter, apparently specifically separable, though evidently derived from an Antillean form". Florida. — **rubrotincta** Hulst, of which only the ♂ type was known to DYAR, "may be a suffused specimen of *purpurascens*"; lines obsolete. HULST founded on it a near genus *Wauchula*, which was certainly not warranted.

nycteis. **S. nycteis** Druce (15 h). Moderately variable, but not closely like any other species. DYAR differentiates it from the rest of the non-purplish members of its group thus: "marks yellow, separated by red; margin more or less purple shaded; no metallic scales." Hindtibia of the ♀ with 4 spurs. The name-typical form (Mexico and extending to Colombia) is more varied with band-like greyish shades than the following. — **ignifera** Warr., from the Guianas, is the most reddish form. — **astota** Schaus, whether as a race or merely an aberration, is described as having the median shade broad and blackish, the subterminal band suffusing with dark marginal blotches above the anal angle. Aroa, Venezuela. — **latifasciata** Bastelb. (15 h). Generally rather large, rather darker than typical *nycteis* and with broader dark suffusions. Jimenez and elsewhere in Colombia and I think also in Peru.

littoralis. **S. littoralis** Prout (15 i). Hindtibia of the ♀ without the rudimentary 4th spur which is usually present in *nycteis*. Sex-patch of ♂ hindwing apparently more compact, roundish rather less elongate, the wings in this sex rather broad, hindwing with termen slightly bent in the middle, its underside whiter. Dark and heavily suffused, most recalling *latifasciata*, sinuous outer band more proximally placed. W. Peru: Barranco (near Lima) and Callao.

amechana. **S. amechana** Dyar. Founded on a badly rubbed ♂, dark purplish, the lines slight and without pronounced borders. Readily recognizable by the shape of the forewing, which has the apex subfalcate, the termen slightly emarginate between this and a slight midterminal angulation. A ♀, redder and with more rosy tint beneath, has the same shape. Both came from Orizaba.

penthemaria. **S. penthemaria** Dyar was accidentally published without locality, but I was informed by the author that it was from Santiago de Cuba. Smaller than *purpurata*, the pale costal edge sharply marked and contrasted, the fragmentary marks which represent the lines distinct.

purpurata. **S. purpurata** Warr., founded on a ♀ from Orizaba, is differentiated from *subrubella* by the largely pale ♂ hindwing and lighter rosy shading beneath; from *penthemaria* by its larger size and less sharp markings.

subrubella. **S. subrubella** Warr. (15 i). Recognizable by the strong dark rosy shading of the underside, with the hindwing red-shaded throughout. Upperside somewhat variable in colour, red or purple, the lines pale, fragmentary. Described from the Maroni River, but reaching Venezuela and the Amazon. I have some doubts as to its distinctness from the following, which has priority of name.

S. subrosea Warr. (15 i). The true *subrosea* is a dusky form from Cundinamarca, with the pale markings *subrosea*. almost obsolete; underside much as in *subrubella*. Specimens from E. Peru, Pará and S. E. Brazil which have determined as belonging to it are, I think, merely rather large, rather dark races of *subrubella* or (if my suggestion under the latter is tenable) *subrubella*-like races of *subrosea*. DYAR did not include *subrosea* in his key, as he had before him only a ♀ from Brazil; but his description of this fits *Lobocleta porphyrinata* Walk. rather than *subrosea* and there is probably a misidentification.

S. ptyctographa Dyar (15 i). This species and the following have not the strongly rosy underside of *ptyctographa*. the two preceding; they are darker purplish than *hegeter* and have the dark edges of the lines inconspicuous. *ptyctographa* is of normal shape and has some rosy shading on the anterior part of the forewing below. Taboga Island, Panama (type series) and Costa Rica. Forms which I refer here reach Ecuador, the Amazons and even Bolivia; in Ecuador it seems to intergrade with more *concoloraria*-like forms.

S. rectimargo Dyar. Larger than *ptyctographa*, forewing more triangular, with termen nearly straight. *rectimargo*. Colour much as in *pannaria*; lines yellowish, broad, coarsely waved, without distinct dark edges. Aroa, Venezuela, 1 ♂.

S. hegeter Dyar. Paler than the rest of the purplish species of the group; described as "pale purplish *hegeter*. carneous, much the colour of *exanimaria*". Wings approaching the *rectimargo* form, lines reduced, inconspicuous, but with distinct dark edges; a dark purplish terminal line and line on costa. Beneath whitish, silky, the forewing roseate along costa. Costa Rica (loc. typ.) and Maroni River.

C. ♂ hindwing beneath with basal third covered broadly with raised ochreous scales.

S. phryctaria Dyar. Close to *pannaria*; darker purplish, the lines broad, coarsely crenulate, yellow, *phryctaria*. without distinct dark borders (only a few dark scales), in the key described as "appearing ochre, contrasted, somewhat broken or segmented". Guerrero and Orizaba, Mexico. Perhaps also in Ecuador.

S. pappasaria Dyar (? = *subroseata* H.-Sch. nec Guen.) (15 i). Also close to *pannaria*, perhaps a *pappasaria*. race; smaller; smooth light purplish grey, the lines scarcely darker edged, little excurved, rather uniform in expression. Cuba. KAYE and LAMONT add Trinidad.

S. olivacea Warr., a ♀ from Suapure, Venezuela, more brown than *pannaria*, possibly somewhat *olivacea*. discoloured (but certainly not "olivaceous"), is perhaps near that species; markings similarly placed, broader but rather indistinct and ill-defined, without pale edgings, interrupted especially between the radials, cell-marks elongate, without pale centres. Underside also browner than in *pannaria*.

S. pannaria Guen. (= *tremularia* Walk., *purpurissata* Grote, *concoloraria* Druce, nec Dogn., *formosa* Hulst) *pannaria*. (15 i). Darker purplish than the succeeding species of the group, the lines dark-edged or dark, the median and postmedian rather strongly excurved behind the middle. Widely distributed in the south-eastern United States, Central America, Colombia, Peru, ? Venezuela. I have not been able to separate the forms from Jamaica and Bermuda. — ab. **borrigaria** Warr. is a narrow form with the yellow element reduced. Described from Mexico. *borrigaria*.

S. turbata Walk. (= *purpuraria* Prout, ex Schaus MS.) (15 i). As determined by DYAR, this is "very *turbata*. close to *pannaria*, perhaps only a local form of it with rather darker ground-colour"; he had three specimens from "Brazil", all ♀♀. I have already expressed a doubt whether, when the ♀♀ are better understood, we may not discard that the name belongs to a *desmogramma* from the Amazons. On the type I noted: "Rather larger than my Maroni *desmogramma*, smaller than Torné (Cauca Valley) *pannaria*, darker than both, lines finer, perhaps more outbent; costa as in the latter; yellow cell-mark of forewing reaching almost to costa."

S. terminata Guen. (= *devolutaria* Möschl., *insutaria* Möschl., *fragmentata* Warr.) (15 i). Distinguished *terminata*. by its pale ground-colour and dark terminal line and (on the forewing) costal edge; bands yellowish, with a few dark scales. With close attention, the characteristic thickening of the postmedian band of the forewing behind the 3rd radial may be observed. Distribution very general from Central America to Brazil and in the West Indies; the type from Colombia, MÖSCHLER's two from Porto-Rico, *fragmentata* from British Guiana. — ab. **rescindaria** Walk. (type from Venezuela) is the correct name for the form with distinct dark postmedian *rescindaria*. spot between the 3rd radial and 2nd median. — **nursica** Druce (15 k), whitish, with the spot very heavy, could *nursica*. be merged in *rescindaria* unless it is racial in Panama (Chiriqui, type and others) and Costa Rica. I have seen too few to pronounce upon its status. — **exanimaria** Dyar is said to be larger, more purple-tinged, the lines *exanimaria*. not broken, rendered conspicuous by their dark irroration. A pair from Cuba. — **majuscula** *subsp. nov.*, from *majuscula*. Santa Catharina, is also larger (20 mm) but has the ground-colour quite pale, the markings (including the cell-marks) broad and conspicuous, but the lines mostly not more continuous than in typical *terminata*. An aberration with purplish suffusion occurs with it.

D. ♂ hindwing beneath with the ochreous scaling continued nearly to the margins.

concoloraria.

S. concoloraria Dogn. (= *concoloraria* Sharp) (15 k). In addition to the sectional character, distinct in its rather large and dark colour and in the shape of the hindwing, which is weakly bent in the middle, not "evenly rounded" as DYAR's key would indicate. Ecuador: Loja and Zamora; also a few scattered localities from Costa Rica to Peru.

E. ♂ hindwing strongly ventricose, the specialized scaling dark.

catagompha.

S. catagompha Dyar (15 k). Large and dark, the shape much more extreme than in *concoloraria*; underside purple, with a broad area of long black lustrous scales on each wing to beyond the middle. Panama (type) and Gorgona Island. Forms (?) from French Guiana and Bahia await further elucidation.

gerocoma.

S. gerocoma Dyar is smaller ("15 mm" as against "19"), not so dark purplish, the lines broader and continuous, wavy. Underside, pale, with little purple tint, the specialized scaling brown, confined to the hindwing and sharply delimited near its middle. St. Jean de Maroni, 1 ♂.

34. Genus: **Paota** Hulst.

Palpus moderate, slender. Antenna of ♂ with short pectinations, surmounted with fascicles of cilia. Hindtibia in the ♂ much aborted, somewhat swollen, without spurs, the tarsus slender; in the ♀, according to HULST, with 4 spurs. Forewing with areole double or simple (certainly variable). Hindwing with the costal diverging more gradually after its short anastomosis with the cell (about as in *Haematopis*), but certainly not "joined with cell nearly to middle", as HULST gives it; 2nd subcostal very shortly stalked. Affinities not yet detected, though it shows several characters in common with *Prasinochrysa*. Only two species known, or perhaps only one.

fultaria.

P. fultaria Grote (15 k), the genotype, will be recognized at once from our figure. It seems to be rare and has only been recorded from Arizona, but I have seen an Orizaba ♀ which is absolutely typical.

sarruncaria.

P. sarruncaria Schaus. Closely related to *fultaria*, of which I am inclined to treat it as a very extreme aberration or local race, with the dark markings reduced to a minimum; but Mr. SCHAUS considers it a species and I defer to his judgment. Lines identical, spots reduced, dark suffusions wanting. Oaxaca, Mexico, only the type known.

35. Genus: **Holarctias** Prout.

(See Vol. 4, p. 85; Suppl.-Vol. 4, p. 49).

Like *Scopula* except in the smaller eye and the more hairy vestiture, the long-projecting hair of the palpus generally a conspicuous feature. To some extent, however, it is probably connected with *Scopula* by intermediates. Typically, the ♂ has a "mappa" on the 8th sternite but lacks the "cerata" (rami) which are almost universal in *Scopula*, the *socii* are "broad, parallel-sided, longer than the distance between their tips, with long, coarse bristles", the aedoeagus with one cornutus, but the whole organ "very characteristic in structure, so that a longer description is needed" (Dr. J. STERNECK, in litt.). The typical group (*sentinaria* sens. lat.), is holarctic, the few others which are recognized belong chiefly to the mountains of the western United States.

sentinaria.

H. sentinaria Hbn.-Gey. (= *spuriaria* Christ., *gracilior* Btlr.) (15 k). Hindtibia of ♂ with 2 spurs. Further distinguished from the following by its brighter, more reddish colouring (almost as in *Paota*), more suffused proximal part of hindwing, etc. The type and that of *spuriaria* came from Labrador, BUTLER's *gracilior* from W. Canada. Variable, but no racial variation has been recognized in the New World; for the Palaearctic representatives reference should be made to Suppl.-Vol. 4.

californiaria.

H. californiaria Pack. (= *californiata* Pack.) (15 k). Hindtibia of the ♂ without spurs, though I have, among a short series from Oakland, one atavistic example with 2 short spurs on one tibia and 1 on the other. Possibly, according to MC DUNNOUGH, only a colour form of *magnetaria*, but kept provisionally separate. "Snuff brown" (PACKARD; but considerably less dark than that of RIDGWAY) instead of reddish brown, other-

pacificaria.

wise very similar. California and Colorado. — ab. **pacificaria** Pack. According to its author this differs in its smaller size, more rounded apex of the forewing, less oblique termen, blacker postmedian line, etc. Said to be "common in California".

magnetaria.

H. magnetaria Guen. (= *rubrolinearia* Pack.) (14 a). Structure, so far as studied, identical with that of *californiaria*; from both it and *sentinaria* it has already been sufficiently differentiated. The locality for both the types (*magnetaria* and *rubrolinearia*) merely given as California.

36. Genus: **Scopula** *Schrank*.

(See Vol. 4, p. 51; Supp.-Vol. 4, p. 33; Vol. 16, p. 61.)

This very extensive genus is far less well represented in the New World than in the Old; out of some 550 species yet described less than 100 belong to the former — little more than one-half the number which are recorded from Africa alone. Yet the forms are so manifestly indigenous, and representative of so many of the groups within the genus, that it is impossible to think of comparatively recent introductions. As has been pointed out elsewhere, *Scopula* is a very natural genus. Antenna of the ♂ generally ciliated (pectinate representatives seem to be wanting in the New World). hindtibia of the ♂ with 2 spurs or spurless (in the latter case often with hair-pencils and more or less shortened tarsus), in the ♀ with 4 spurs. Wings without special modifications; areole simple; 2nd subcostal of hindwing not or scarcely stalked with 1st radial, 1st median not stalked. The forewing is seldom irregular in shape, the hindwing often crenulate, or with an angle (blunt or acute) at the 3rd radial. Genitalia of the ♂ with the valves fused, the sacculus (ventral arm of valve) more or less strongly chitinized, uncus undeveloped. 8th sternite with a plate, terminating in 2 arms (often asymmetrical), termed cerata or rami, which are covered by a flap called the mappa. Larva very slender, without protuberances.

A. Section *Pylarge* Warr. Hindtibia of ♂ with terminal spurs.

S. neophyta *Prout* (16 a). Distinguished by the narrow pale wings (the hindwing quite weakly marked), *neophyta*, straightish lines of the forewing, slender abdomen and long slender hindleg. Bogotá.

S. albidulata *Wcrr.* (18 e). Also whitish, but less slender, less narrow-winged, the lines thicker, much *albidulata*, less sharp, curved, ochreous. S. E. Brazil.

S. timboënsis *sp. n.* (16 a) agrees in external structure with *albidulata* and may possibly be a remarkable *timboënsis* form of it, but makes the impression of a separate species. In the (slightly) narrower wings and the light brown colouring it is somewhat intermediate towards the structurally very distinct *mappata* (18 b) and this suggestion is enhanced by the development of a more deeply-coloured spot at the hindmargin of the forewing. Forewing with the postmedian dots strong, the one on the 1st radial standing out quite as in *unicornata*. Forewing beneath strongly suffused in the cell, with cell-dot, postmedian and terminal dots conspicuous, median shade indicated; hindwing pale, with only the cell-dot and terminal dots developed. Timbó, 6 May 1934 (H. KOCH), a very fresh ♂ in the Senckenberg Museum.

S. ancillata *Hulst* (16 a). HULST seems to have mixed this species and the following, which he described *ancillata*, simultaneously, and one of his original localities (Sierra Nevada) belonged really to the latter. The type locality is therefore, according to BARNES and MC DUNNOUGH, Arizona, but its range extends to Colorado and even into British Columbia and Alberta and the specimen here figured (determined, I believe correctly, by G. W. TAYLOR) came from Manitoba. — **catenes** *Druce* (16 b), from Mexico, seems to be at most a slight modification, *catenes*, perhaps really a synonym, of *ancillata*. Perhaps not quite so white as typical *ancillata*, the underside, at least of the forewing, somewhat more irrorated. Only the type is known; a whiter specimen from New Mexico seems still nearer to *ancillata*.

S. fuscata *Hulst*, described as a variety of *quinquelinearia* (16 i), has in fact according to BARNES and *fuscata*, MC DUNNOUGH nearly the maculation of that species but is of a dull grey colour and has the leg-structure of *ancillata*. It further differs from *quinquelinearia* in the more rounded hindwing and the straighter submarginal line and is closer to *luteolata* *Hulst* in everything but colour. California: Sierra Nevada, etc., at high altitudes. Also said to occur in British Columbia, but this reference may belong to *ancillata*.

S. luteolata *Hulst* (16 b) is the only yellowish North American species of the present structure-group; *luteolata*, variable, but perhaps less in the colour (which HULST calls "light clay brown") than in the wing-expanse and the strength of the markings. The typical form has the markings weak, the postmedian and a pale subterminal the most distinct; the ♀♀ are smaller, with the lines generally stronger; aberrations in both sexes can show a broader or stronger median shade and even, though rarely, sharp but minute black cell-dots. Not rare in Colorado.

S. aemulata *Hulst* (= ? *compensata* *Hulst*, err. det., nec *Walk.*). "Expanse 18—20 mm. Dull clay- *aemulata*, white with an ochre tinge, powdered slightly with scattered blackish scales; forewing with a faint, dark fuscous extradiscal band, generally obsolete anteriorly, more definite towards inner margin; submarginal space fuscous, more decided towards anal angle, with an inner row of black dots on veins and an included wavy lighter line, marginal spots [dots] black; hindwing with the bands and lines continued, but darker and more distinct; discal spots black, distinct." Florida, discovered at Charlotte Harbour in March; perhaps also in Texas.

S. cacuminaria *Morrison* (= *cacuminata* *Pack.*) (16 b). This very distinct species, which HULST quite *cacuminaria*, wrongly misidentified as *purata* *Guen.*, is easily recognized by its sharply angled hindwing and the character

of the markings of the distal area, which recall those of some forms of *limboundata* Haw., a larger species with different leg-structure etc. Abdomen with dorsal dots. Described from Massachusetts, but distributed at least to North Carolina.

canthema. **S. canthema** Schaus. "Expanse 22 mm. Wings pale buff, irrorated with black and grey scales; a cluster of black scales in the cell; inner and median lines very indistinct, except as costal blotches on the forewing; outer line dark grey, dentate; a subterminal line, parallel and similar to outer line; a terminal dark line interrupted by veins." Oaxaca, Mexico. I have seen the originals and noted as similar to *grasuta* but more yellowish, the type a ♀, the allotype with 2 spurs on the hindtibia.

vigensis. **S. vigensis** sp. n. (= *jamaicensis* [part.?] Schaus, nec Warr.) (16 b). Probably very similar to *canthema*, which I cannot compare side by side, but white, the cell-dots distinct, the distal area, at least of the forewing, with macular brownish patches before and behind each fold, the proximal pair adjoining the postmedian, the distal close to the termen, the sinuous subterminal broad, much as in *hieronyma* (16 c), to which it approximates in shape (though the crenulations may be slightly stronger and more irregular), but from which it is readily distinguishable by the well-developed spurs of the ♂ hindtibia, the much less outbent antemedian line, etc.; median costal spot not very broad; forewing beneath suffused and weakly marked. Antenna with the fascicles of cilia moderately long. Mexico: Las Vigas, May 1896, ♂♂ apparently distributed by SCHAUUS as *jamaicensis*, which is generally smaller, has the wings rather less crenulate and weaker-marked and is a *Lobocleta*, therefore quite different in venation and leg-structure. Type in the Tring Museum.

B. Section *Scopula* Schrank. Hindtibia of ♂ without spurs.

sideraria. **S. sideraria** Guen. (16 b). Similar to *luteolata*, though somewhat brighter; also similar in that the ♀ is generally smaller than the ♂. But, as GUENÉE definitely says, the ♂ hindtibia is without spurs; tarsus as long as tibia. California (loc. typ.) to British Columbia. From the Kootenai district DYAR obtained ova and reared the larvae up to the hibernating stage (4th instar); head rounded, slightly bilobed, body slender, uniform, cylindrical, finely annulate, tubercles small, setae short, thick, brown; colour pale brown dorsally, subventral fold pale yellow, venter dark brown with a lighter central line; a narrow geminate blackish dotted line dorsally and subdorsal dark-brown spots.

chretieni. **S. chretieni** Barnes & Benj. (= *bucephalaria* Barnes & Mc D., nom. praeocc.) (16 b). Very close to *sideraria*, but entirely lacking all trace of the ruddy terminal shading of that species and with the underside much paler ochreous (in *sideraria* brighter than upperside) and more heavily marked. California: the type series from Tuolumne Meadows.

subfuscata. **S. subfuscata** Tayl. "Expanse 30 mm." Said to differ from *inductata* in its "much redder tint", the whole insect, except the front, which is a little darker, being of a "soft warm fawn-colour". Victoria district (British Columbia) and Colorado. As there was for a long time a confusion (due to one of HULST's many muddles) regarding the generic characters of *inductata*, the structural distinctions on which TAYLOR relied in erecting his species are invalid and I do not see why *subfuscata* should not be a larger, brightly coloured form of *inductata*.

inductata. **S. inductata** Guen. (= *anticaria* Walk., *suppressaria* Walk., *sobria* Walk.) (16 b). Superficially reminiscent of *virgulata* Schiff. of the Palearctic Region (Vol. 4, pl. 4 k) or, in the generally fine and relatively conspicuous postmedian line, of an overgrown *rubiginata* Hufn. (Vol. 4, pl. 4 h); hindtarsus of the ♂, as in them, about as long as the tibia. Colour variable, typically somewhat infuscated and with a slight or (occasionally) more decided tinge of fawn-colour. Underside strongly marked, the proximal part of the forewing strongly suffused. — ab. *consecutaria*. **S. consecutaria** Walk. is larger and paler, both above and beneath, with the median line strong, the postmedian well crenulate. — Very widely distributed in Canada and the eastern United States, June to September. DYAR bred the larvae as far as the 5th stage, from eggs laid by a much worn Washington ♀, the determination pretty certainly correct; the larva is described as slender, nearly cylindrical, the head rounded, scarcely bilobed, the tubercles in the adult larva minute, dark, the setae short, dark, slightly enlarged before the tip, the spiracles brown-rimmed; general coloration whitish, with brown shading, which forms a geminate dorsal line; some vinous-brown spots laterally, etc. Eggs laid 1 June reached the last instar on 1 July.

frigidaria. **S. frigidaria** Möschl. (= *defixaria* Walk., nom. praeocc., *impauperata* Walk., *arcticaria* Walk., *okakaria* Pack., *spuraria* Pack., ex err.) (18 e). Readily separable from *inductata* by the shape (forewing broader, with termen less oblique anteriorly, hindwing more rounded), the dense irroration and weaker markings, the subterminal almost obsolete. An essentially boreal species, see Vol. 4, p. 65, pl. 5 b; in Canada it has a very wide range, extending from Yukon to Labrador, known also from Newfoundland and I think Nova Scotia.

hieronyma. **S. hieronyma** Prout (16 c). Closely like *plantagenaria*, possibly a subspecies of it. Generally larger; the wings relatively longer and narrower, with a yellowish or ochreous tinge, the markings sharper, the dark spots, especially the costal ones, enlarged. Arizona.

S. plantagenaria *Hulst* (16 c). Hindleg of ♂ slender, the tarsus long but the tibia spurless, in this differing from the similarly marked *canthema*. A small whitish species with grey markings, somewhat recalling the *marginipunctata* group of the Old World. Texas (loc. typ.) and Florida.

S. grasuta *Schaus* (16 c). "Vertex white. Wings whitish, thickly irrorated with grey scales; a minute black point in the cell; lines very indistinct; outer line like a broad darker grey shade; a terminal black line interrupted by veins." Orizaba. On the type I noted "*marginipunctata* (Vol. 4, pl. 4 h) group, fascicles long, tibia slender, spurless, tarsus at least as long; very near *plantagenaria*, rather more bluish or violet-grey". Probably variable; the topotypical ♀ here figured has the irroration and markings brown-grey, the outer line (postmedian) macular or, strictly speaking, accompanied by two brown-grey spots. — ab. (? subsp.) **admes** *nov. admes*. Abdomen with a white spot at base (discernible, however, in the one *grasuta* before me); forewing at least as elongate relatively as in *hieronyma* (16 c) costal spots weak, proximal area suffused with brown; both wings with subterminal line sharply white. Guatemala: Purula (CHAMPION), the unique type a ♂, mixed by DRUCE among "*Boarmia*" *novaria* *Walk.* (!).

S. nacida *Dogn.* (18 e). Easily recognizable from our figure. Antennal ciliation of the ♂ long, tibia moderately dilated, tarsus about $2\frac{2}{3}$ tibia. Forewing beneath suffused except at hindmargin, hindwing white; both wings with strong cell-dot, strong terminal line and irregular line near termen (about as the postmedian of the upperside), forewing also with subterminal shades. S. Ecuador (type) to E. Peru. — **cinerosaria** *Warr.* is much more densely irrorated on the upperside than most *nacida*, the markings standing out less sharply, the cell-dots perhaps less large. DOGNIN's type, however, is a well-dusted example and it is possible that the two names should be regarded as synonymous. Underside as in the type form. Carabaya, 3000—6000 feet.

S. infota *Warr.* (16 c). At least as pointed-winged as *nacida* but much smaller and always of a very dark grey. Antennal ciliation of the ♂ not long, hindtarsus nearly as long as tibia. The originals, 2 ♂♂ from Bolivia (Rio Songo to Rio Suapi), are perhaps not quite so blackish as the abundant Carabaya material subsequently received and seem to have the sinuosities of the termen of the hindwing less marked. I therefore regard — **perfumosa** *Warr.* (16 c) as a probable race, scarcely variable, the course of the lines sometimes scarcely traceable on the black-grey ground, but apparently identical with that of *i. infota*. Carabaya, chiefly at altitudes of 9000 feet and upwards, especially plentiful at Agualani.

S. convictorata *Snell.*, from Ubaque (Colombia) is unknown to me, but is said to be a very ordinary *Acidalia* (*Scopula*) of the size of *Sterrha seriata* (Vol. 4, pl. 4 d) but with the markings so similar to those of *incanata* (Vol. 4, pl. 4 i) that it looks like a miniature edition thereof, with finely dentate median line, on the forewing following, on the hindwing preceding the black cell-dot; the wings, however, are more elongate and it may well be a lighter ("greyish white") relative of *infota*, with a median line more nearly as in *nacida*.

S. stenoptera *Prout.* Expanse 19 mm. Antennal ciliation about as long as diameter of shaft; hindtibia somewhat elongate, dilated, tarsus about $1\frac{1}{3}$. Wings narrow for a *Scopula*, recalling in shape those of *Lobocleta borvnta*, but with the coloration of *L. jamaicensis* (white, with blackish irroration); lines irregularly dentate, brownish-grey, on forewing slightly thickened and blackened at costa and hindmargin; cell-dot and terminal dots strong, the latter slightly lunulate. Hindwing with termen subcrenulate, a slight, shallow excision between the radials (shallower than in *perfumosa*, 16 c). Peruvian Amazons: Ucayali, the type ♂ only. A slightly whiter ♂ from Callanga, Cuzco. Quite distinct in shape from *convictorata* as figured by SNELLEN.

S. conotaria *Schaus.* Hindwing smooth-margined, as in *convictorata*, but appreciably broader-winged and with a tinge of buff in the ground-colour, the cell-dots minute, the postmedian on the forewing somewhat punctiform; terminal line interrupted at the veins, otherwise rather thick, inclined in places (especially on the hindwing) to assume a subtriangular form. S. E. Brazil: São Paulo and Castro.

S. perlimbata *Snell.* (= *obsoleta* *Prout.*). Larger than the other South American *Scopula* which have this colouring, the brown markings stronger and forming a band-like shade outside the postmedian. Structure much as in *vinocinctata*, the antennal teeth of the ♂ stronger. The name-type, from Colombia, differs from the figured race in the suppression of the characteristic cell-mark, which is at best indicated by a faint light-brown streak. — **atridiscata** *Warr.* (16 c). Cell-mark of forewing long and thick, blackish. A constant race, or possibly separate species, in S. E. Peru.

S. vinocinctata *Guen.* (16 d). Ciliation of ♂ antenna long, hindtibia strongly dilated, tarsus much abbreviated. Ante- and postmedian lines punctiform; cell-mark of forewing large, round-oval, light brownish, dark-ringed. Brazil.

S. rubrocinctata *Guen.* (= *rufifimbria* *Warr.*) (16 c). Both the cell-dots punctiform, costal edge less darkened, terminal line broken into black dots, other lines less strongly sinuate than in *vinocinctata*. "Brazil?", given by GUENÉE, may indicate Pará, from which locality I have seen the species. WARREN's type came from Palcazu, Junin.

- fuscescens*. **S. fuscescens** Warr. (16 d), described as an aberration of *abornata*, is generally larger, has the hindwing somewhat more strongly angled and is of a purer, more glistening white, with the markings, typically stronger grey, though in aberrations they become olive-brownish, more as in strongly marked *abornata*. Bolivia (type) and Peru.
- candida*. **S. candida** Warr., only known to me in the type ♂, from "Costa Rica" (UNDERWOOD) and a ♀ from Orosi, 1200 m (A. H. FASSL), may possibly be a rather large, rather weakly marked form of the preceding, with which it agrees in its shining white ground-colour and angular hindwing; antemedian line of forewing fairly well expressed, median shade less broad than in the allies, of almost even width throughout, sinuous (excurved well beyond the cell anteriorly, incurved posteriorly).
- abornata*. **S. abornata** Guen. (16 d). Whitish, less pure than in the two preceding, the markings olivaceous, rarely very strong; in GUENÉE's type (a ♂ in very poor condition) the median shade seems weak and slender but usually it is broad and diffuse on the forewing. Antenna in ♂ dentate, with long ciliation; hindtibia dilated and elongate, tarsus much abbreviated. Described from Brazil, probably the Rio district; common in S. E. Brazil and Paraguay.
- obliviaria*. **S. obliviaria** Walk. (= *chlorochrea* Warr.) (16 d) is probably an aberration of the preceding, with the ground-colour suffused, so that the markings are not or scarcely differentiable therefrom. S. E. Brazil, with *abornata*.
- ablativa*. **S. ablativa** Dogn. "19 mm". Cream-colour, irrorated with black, the markings brownish, analogous to those of *abornata*, lines better developed, the postmedian marked with black vein-dots, the median of the hindwing straight, well proximal to the cell-dot. (Adapted from DOGNIN.) The white-encircled cell-dot of the forewing, standing within the ill-defined median shade is also noted, but applies to some *abornata* also. Misiones: San Ignacio, type ♀ unique. I have seen it and believe the apex is slightly more acute than in *abornata*, the termen of the hindwing faintly waved, not at all angled.
- serratilinea*. **S. serratilinea** Warr. (16 e). A striking species, with the lines of the outer area strongly serrate and parallel, the proximal area strongly irrorated. La Union, Rio Huacamayo, Carabaya (loc. typ.). E. Ecuador and S. Peru.
- conduplicata*. **S. conduplicata** Warr. (16 e). Proximal area cleaner white, on the forewing with a fine, irregular antemedian line; distal area with the first 2 lines approximated, except anteriorly, behind the 3rd radial thickened or connected by some dark shading. Apex more pointed than in *serratilinea*. Bolivia (type) and S. E. Brazil.
- eburneata*. **S. eburneata** Guen. (16 e). A tiny species, of simple shape and pattern, the hindtarsus of the ♂ not greatly shortened. Pure white, the costal edge of the forewing above narrowly ochreous, beneath more broadly and dully tinted; cell-dots and terminal dots sharply black, the lines more brownish, more or less indefinite, excepting the punctiform postmedian, which forms a characteristic outward tooth at the 1st radial. Very widely distributed from Mexico to Brazil and Argentina, but apparently not in the west of South America; the originals from Brazil. — ab. **blandula** Warr. has all the teeth of the postmedian strong, though that of the 1st radial remains the strongest. 1 ♂ from St. Jean du Maroni. I doubt whether it is worthy of a separate name. — **subsignaria** Walk., from Jamaica, is somewhat shorter-winged and more irrorated, but probably conspecific. — **chionaeata** H.-Sch. Status somewhat more doubtful. If I have it correctly determined, it is even smaller than typical *eburneata* and seems to have the hindtarsus relatively somewhat shorter; otherwise closely similar.
- purior*. Cuba and perhaps Portorico. — ab. **purior** nov. (16 d) is more noteworthy: blackish irroration reduced, median shade and those between postmedian and termen almost entirely obsolete, the remaining lines shown chiefly by the vein-dots; terminal line reduced to isolated dots. Itatiaya, Brazil (Dr. A. SEITZ), a very fresh ♂ in the Senkenberg Museum.
- purata*. **S. purata** Guen. (= *nigrocandida* Hulst) (16 d). White, with very little marking in the proximal area, the cell-dots and terminal dots black, the postmedian on both wings accompanied by an irregular row of dark spots. Antenna "pubescent" (GUENÉE), hindtibia of the ♂ somewhat dilated, tarsus short. Texas and Florida.
- lautaria*. **S. lautaria** Hbn. (= *laretaria* Hulst, *myrmidonata* Guen., *minutularia* Hulst) (16 d). Another clean white species of very small size, very distinct in the two bright-brown postmedian patches of the forewing, placed respectively between the radials and between the 2nd median and the hindmargin. Antennal ciliation of the ♂ not long, hindtarsus over $\frac{1}{2}$ tibia. South-eastern United States; HÜBNER's type was sent from Pennsylvania.
- micrata*. **S. micrata** Guen. (16 d). Of this I only know the type ♂, which reminded GUENÉE of the Noctuid genus *Micra*, hence the name. Ciliation of antenna about as long as diameter of shaft, tarsus about $\frac{1}{2}$ the tibia, which is rather strongly dilated. The band-like antemedian and strong subterminal of the forewing, neither of them reaching the costa, are characteristic. Haiti.

S. juruana *Butl.* (= *virginea* *Warr.*, *inquinatula* *Warr.*) (16 c) is another well characterized species, the *juruana*. blotch (apparently pretty constant) behind the 3rd radial, black-mixed; hindwing relatively strongly marked. Hindtibia of the ♂ scarcely dilated, tarsus not greatly shortened. Distributed from the Guianas to E. Peru and E. Bolivia, BUTLER'S type from Rio Jurua, Amazons, *virginea* from Surinam, *inquinatula* from E. Peru.

S. oliveta *Prout* (16 e). Another very distinct species; the black cell-dots and terminal marks present, *oliveta*. the usual lines wanting, the blotches light olive-green. Antennal ciliation of the ♂ longer than diameter of shaft, hindtarsus about as long as tibia. Minas Geraës and Espiritu Santo, few specimens yet known.

S. umbilicata *F.* (= *indoctaria* *Walk.*, *nigroapicata* *Th.-Mieg*) (16 e). Recalls the *pulchellata* *F.* of the *umbilicata*. Old World (see Vol. 16, p. 69, pl. 7 c) in the fine, sinuous postmedian line of the forewing and the presence of a dark dot close to the apex; the dot is here generally black rather than grey, hence very conspicuous. The ornamental postmedian blotches of *pulchellata* are wanting. Described from the West Indies, this common species spreads from the southern United States to Brazil. — ab. **cugia** *Schaus* is a form with two blotches outside *cugia*. the postmedian which increase the general similarity to *umbilicata*. Described from Orizaba, occasional in several localities. — **peruviana** *Prout*. Ground-colour darker, decidedly tinged with greyish fawn, the lines *peruviana*. less firm, the postmedian showing a tendency to thicken at the two distal curves, the terminal line more broken into dots or well-separated dashes. W. Peru; near Lima (the typical series) and Callao.

S. crenatilinea *Warr.* (16 e). Very near *umbilicata*, generally larger, but differing chiefly in the more *crenatilinea*. crenulate postmedian. Described from Huancabamba, Cerro de Pasco; known also from Bolivia, Matto Grosso and perhaps Paraguay.

S. convergens *Warr.* (16 e) is another close relative of *umbilicata*, slightly more elongate-winged and *convergens*. with the postmedian line straighter and more oblique. Onaca, Santa Marta (N. Colombia) and N. W. Venezuela.

S. irrubescens *Prout* (= *irrufata* *Warr.*, nom. praeocc., *compensata* part. *Druce*, nec *Walk.*). Very *irrubescens*. similar to some forms of *subnictata*. the dots on the postmedian quite weak; the ♂ antennal ciliation very long (definitely longer than in *subnictata*), hindtarsus perhaps a trifle shorter (about $2\frac{2}{3}$). Jalapa, the type ♂ with a "pinkish flush", the lines darker pinkish. If correctly delimited, it occurs in Central America and Colombia. — ab. **maculata** *nov.* (16 f), apparently only developing fully in ♀♀, has composite dark spots accompanying *maculata*. the postmedian of the forewing. Jalapa, Orizaba, etc.

S. thrasia *sp. n.* Face black. Antennal ciliation of ♂ long, probably at least twice diameter of shaft; *thrasia*. hindtarsus about $2\frac{2}{3}$ tibia. General coloration about as in the following species, wings more regularly shaped (about as in *subnictata*); brown markings weaker, slightly more greyish, postmedian of both wings much less sinuous, proximal subterminal of forewing with dark markings opposite those of the postmedian, but without connective brown spots, terminal dots minute; hindwing beneath with (minute) cell-dot and indications of slender postmedian and of terminal line. Mexico, 2 ♂♂, 2 ♀♀ in the British Museum. Guadalajara (P. H. GOLD-SMITH), type ♂; Cuernava, Morelos. I first thought this (which was also part of the "compensata" congeries of DRUCE) might be a white form of *subrubescens*, but the cilia of the ♂ antenna are almost certainly less long; the somewhat shorter tarsus makes a union with *subnictata* equally precarious; *enucloides* should be 1 or 2 mm. larger, the costal edge and fringes brown, and has the tarsus longer and the terminal line beneath broken into dots.

S. anysima *sp. n.* (16 f). Face black. Ciliation of ♂ antenna nearing twice diameter of shaft; hindtarsus *anysima*. less than $1\frac{1}{2}$ tibia. Forewing rather elongate, termen sinuous, tornus weak; hindwing with termen prominent at 1st radial, concave between this and the strong tooth of 3rd radial; lines weak, except the very sinuous postmedian, which on the forewing is blackened between the radials and behind the 2nd median and margined distally by 2 brown spots; terminal dots or shallow lunules conspicuous anteriorly. Forewing beneath with smoky brown suffusion in and beyond cell, cell-dot larger than above, postmedian from a costal spot and marked with dots on the veins; hindwing beneath unmarked. Vera Paz, Guatemala. Senahu, type and another ♂; Cubilguitz, 3 ♂♂; Panama: Chiriqui, 2 ♀♀; all from the GODMAN-SALVIN collection. *enucloides*, if I mistake not, has more regular shape and simpler pattern.

S. enucleoides *Schaus* (= *enucleata* *Druce* nec *Guen.*). Smaller than "enucleata" (*limboundata*) and in *enucloides*. my opinion not particularly similar; ♂ hindtarsus totally different, about as long as the tibia, tibial pencils moderate. I would describe it as resembling a large, broad-winged, white, brown-marked *subnictata*, with well angled hindwing. Cell-dots minute, costal edge of forewing narrowly pale-brown. Coatepec, Mexico, the type a ♂.

S. micara *Schaus*. About the size and shape of *enucloides*, the angle of the hindwing scarcely so sharp; *micara*. antennal ciliation not longer than in *subnictata*, hindtarsus of ♂ rather shorter than tibia. Markings extremely weak, tone somewhat olivaceous, a little recalling that of *oblivaria*. Castro, Paraná, the type a ♂.

- subnictata*. **S. subnictata** Snell. (16 f). Face (as also in *irrubescens*) black. Less rufous than typical *irrubescens*; ♂ antennal ciliation a little less long; hindtarsus not much shorter than tibia ($\frac{2}{3}$ to $\frac{3}{4}$); abdomen with small black dorsal spots. Hindwing more angled than in *subquadrata*. Commonly the darkened element in the pattern consists only of the 5 blackened dots or small spots on the postmedian of the forewing, but forms occur with these duplicated distally so as to form (or suggest) larger spots. Forewing beneath generally with dark suffusion.
- cuphoptera*. Colombia (including the type) and distributed to Bolivia. — **cuphoptera** subsp. nov. Larger (26—28 mm), abdomen and wings a trifle more slender and elongate; forewing with median shade fairly distinct, not or scarcely incurved at fold, postmedian rather near termen, very little curved at the radials, simple except for the 4 or 5 black dots or teeth in the region of the folds; underside without the proximal and median lines. Monte Tolima, at 3200 m (FASSL), 8 ♂♂, the type in my collection. Probably a high altitude form.
- phyxelis*. **S. phyxelis** sp. n. (16 e). Ciliation of ♂ antenna very long, about as in *irrubescens*, forewing relatively elongate, expanse 24—28 mm. Face about cream-buff, only a little dark-mixed above. Cell-dots sharp, terminal dots present above and beneath, markings weak, light brownish buff, the only darkened (sometimes blackened) markings being on the postmedian of the forewing, with distal duplications. Underside characteristic: for the most part unmarked except by small cell-dots, only the costal part of the forewing irrorated and slightly suffused and with the costal spot of the upperside conspicuous, slightly thickened, reaching to near the 5th subcostal. Tarsus slender, fairly long (over $\frac{2}{3}$ tibia). Costa Rica, 3 ♂♂ in the British Museum: Irazu, 6000—7000 feet (the type); S. Francisco, 4500 feet; Cachi district.
- compensata*. **S. compensata** Walk., founded on a ♂ from E. Florida, is possibly a very unusual form of the ubiquitous Neotropical *subquadrata*. Hindtarsus broken in the type; has probably been less shortened (?). Face with upper half fuscous instead of light-brown (lower part dirty whitish); forewing slightly more elbowed at 3rd radial, the margin behind this becoming rather suddenly more oblique, hindwing with the termen slightly more irregular — a little more excavated in the middle, the tooth at the 1st radial more noticeable; postmedian of forewing with its bends rather less deep, its costal spot rather large, no posterior spot; both wings above and beneath with black vein-dots at base of fringe in addition to the larger terminal ones between the veins. Slightly intermediate forms have, however, been received from Mexico (Teapa) and Guatemala and the difference in shape is in reality less than it looks, the irregularities being enhanced by the fringe-dots. — ab. (?) **obluridata** Hulst. founded on a ♀ from Rockledge, Florida, probably belongs here, as HULST mentions the dotted fringes; but he merely says, of the other critical points, “palpi and head reddish brown” and hindwing “somewhat” angled. It differs from type *compensata* in having two blackish subterminal spots on the forewing: at the radials and at tornus, “19 mm”. A small ♂ from “Honduras” (ex coll. JOICEY) fits the description well, except in size and in that the face is little darker than in *subquadrata*.
- puerea*. **S. puerea** Dogn. is another unicum. 18 mm (Continental measurement). Face brown; hindtibia not very thick, tarsus not much less long. Otherwise closely similar to some of the rather large, long-winged forms which have not been separated from *subquadrata*; not much brown-tinted; angle of hindwing rather weak. Paramba, a ♂.
- subquadrata*. **S. subquadrata**. Excessively variable, but generally unmistakable on account of the very light brownish face, which generally becomes quite white on the lower part. Antennal ciliation of the ♂ about twice diameter of shaft; hindtarsus $\frac{1}{2}$ tibia or rather less. Distributed from Mexico and Florida to S. Brazil and in the West Indies. The following is an attempt to give some idea of the scope of the various names which have been imposed. — **subquadrata** Guen. (16 f). The typical, and a quite common, form has the ground-colour bone white, the markings pale yellow-brownish, only the median of the hindwing (as in all but the weakest-marked forms) more mixed with blackish, no dark spots except the one near the inner angle of the forewing. Cell-dot and terminal dots, as in all forms of the species, black, fringes not appreciably dark-spotted. The originals were from Brazil (type) and Cayenne. — ab. **apparitaria** Walk. (= *approbata* Warr.) (16 f) is merely somewhat smaller and whiter, more weakly marked, even the tornal spot of the forewing and the slender median line of the hindwing little accentuated, the former not even indicated in sub-ab. *approbata*. Honduras, etc. Unless it should prove to be localised, it scarcely deserves a separate name. GUENÉE called 2 ♀♀ from Cayenne, with rather sharper lines, “var. A.” — ab. **confertaria** Walk. has a dark shade or band between the postmedian and the subterminal of the forewing, somewhat variable in its strength. WALKER knew specimens from “Brazil” (type) and Honduras. A rather large and long-winged ♀ from Brazil (GUENÉE’s “var. B”) shows an extreme development and has been well figured by OBERTHÜR. — ab. **tortuosaria** Möschl. is a slight modification of *confertaria* with the outer band only well developed between the radials and behind the 2nd median and (as in GUENÉE’s “var. B”) with a longitudinal prolongation outward near the costa. Porto-Rico. — ab. **internexata** Warr., a ♀ from Salidero, N. W. Ecuador, is a weakly but uniformly grey-banded modification of *confertaria*, the ground-colour perhaps somewhat less brownish. — ab. (?) **responsaria** Walk. is said by SCHAUS to be a distinct species, but I have assumed it to be a weakly marked aberration of *subquadrata*; unfortunately I made no detailed notes on the

type, a ♀. "Whitish cinereous, with a slight testaceous tinge; (four) lines pale cinereous, slightly zigzag; discal point and marginal points black; forewing acute, with an indistinct interior line; hindwing with the median line brownish hindward; exterior border slightly bent in the middle; length of wings 10 lines." Brazil. DOGNIN says his *puerca* (supra) is very similar. — ab. **trias** Warr., from Chulumani, Bolivia, should probably be sunk *trias*. as a larger "approbata" (see under *apparitaria*); WARREN distinguishes it by the more zigzag postmedian line, but I find many *subquadrata* of all sorts in which it is thus formed. White, with the lines and shades pretty uniform, moderately distinct. — ab. loc. **atomaria** Warr. (16 f). Very like the preceding, the tornal spot equally *atomaria*. undeveloped; more brownish and more irrorated, dots on the fringe often more or less indicated (compare *compensata*), postmedian line of forewing generally rather indistinct at its subcostal angulation. Jamaica. — ab. **tincta** Warr. (16 f) stands between typical *subquadrata* and ab. *tortuosaria*; spot near tornus strengthened, that *tincta*. between the radials less so, but well noticeable, no distal prolongation thereof. Rio Inambari, S. E. Peru. — **floccularia** H.-Sch. (16 f) may be a separate race, though it is more probably a mere coincidence that the numerous *floccularia*. examples which I have seen show much more constancy than continental *subquadrata*. A rather simple form, with hindmarginal spot of the forewing not manifest except in the rare cases in which one between the radials is equally manifest (foreshadowing *obluridata*). Cuba. The Florida *subquadrata* which I have seen seem to agree with it; distinct from *compensata* in the whitish face and pale wings, etc.

S. limboundata Haw. (= *ennucleata* Hulst err. transcr., *alabastaria* Hulst err. transcr. et det., *abornata* *limboundata*. Prout) (16 g). Another extremely variable species but not, I think, in danger of being confounded with any other. Hindtarsus extremely short. Underside pretty constant, white, with small cell-dots and terminal dots and slender postmedian (weaker on the hindwing). The synonymy of the principal forms has been complicated by the changes in the nomenclature of the species itself. HAWORTH in 1809 described from Georgia the ornate-bordered form which, founding my study on GUENÉE'S work, I named *adornata* in 1907. — ab. **enucleata** *enucleata*. *Guen.* (= *restrictata* Walk., *reconditaria* Walk., *continuaria* Walk.) (16 g). Although GUENÉE knew (and figured) one of the blotched forms, he called that "var. A" and his type was quite definitely the simple form, with only the lines, dots and light subterminal shades. — ab. **mensurata** Walk. is an unimportant modification of *enucleata*. *mensurata*. purer white. the subterminal shades still fainter, not at all macular. — ab. **relevata** Swett (= *enucleata* var. *relevata*. *A Guen.*) is a rather frequent form with a dark subterminal blotch on the forewing only; typically this reaches only from the hindmargin to the median veins, but there is often some extension (or rather, reappearance) of dark maculation in the region of the radials. Types from New York State; exact localities are not given for those of the two preceding aberrations, but the variation is not geographical. — *limboundata* is very general in Canada and the United States from the Atlantic to the Rocky Mountains. The life-history has been described in detail by DYAR, who bred it on wild cherry and apple; without doubt a general feeder on low plants, the eggs laid unattached. Larva strongly elongate and slender, with the head rounded, the predominant coloration brown, with some admixture of ochre; the adult larva (stage 6) is described as wood-brown, dorsally (from the metathorax hindward) ochraceous; mediodorsal line diffuse, reddish-brown "becoming a bluish white bar on the large 1st annulet; an irregular, broken addorsal pattern of crinkly black marks. Hibernates in the 4th or occasionally the 5th stage and is full-fed in the spring. Moth single brooded, June to August.

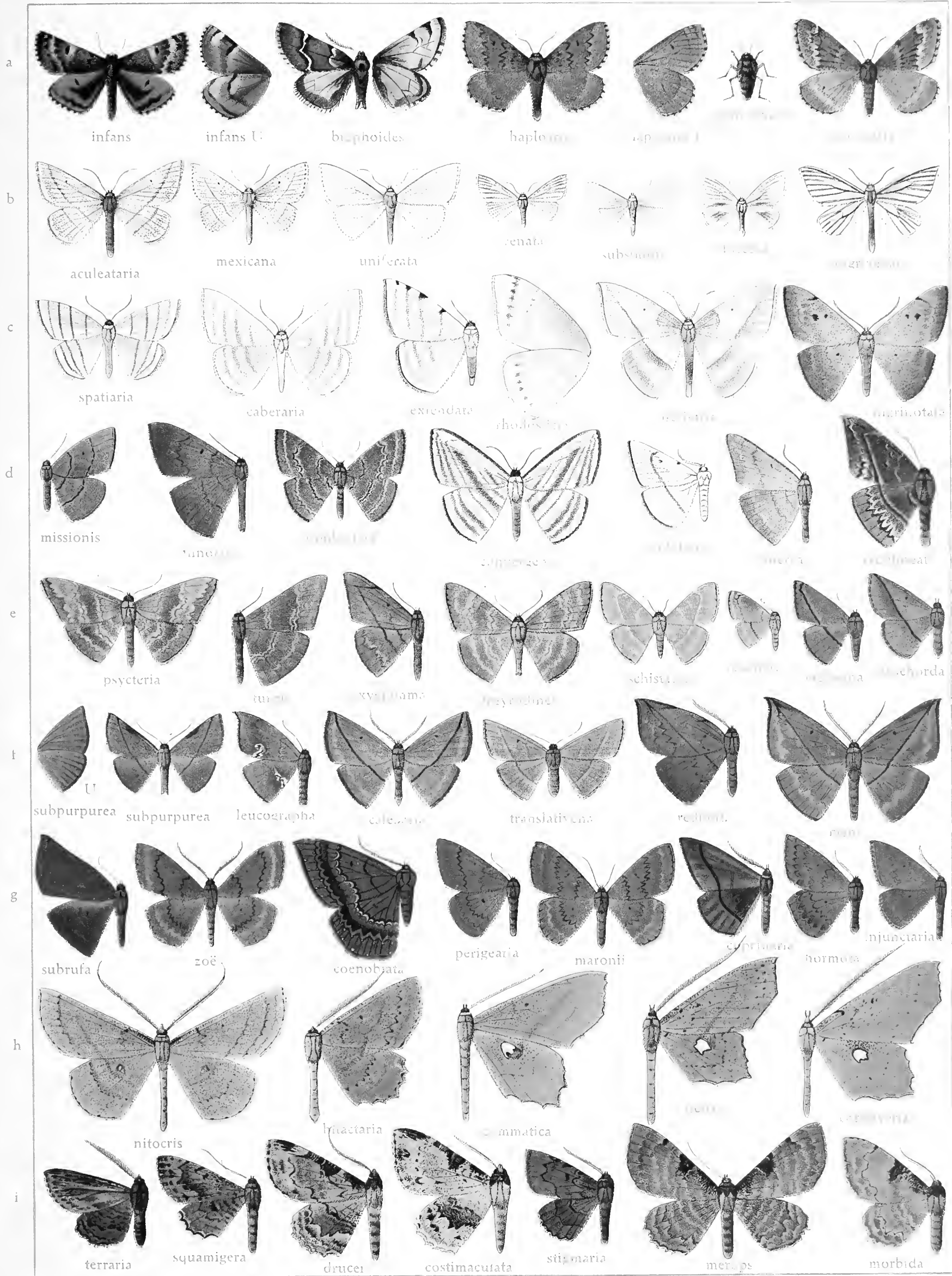
S. timandrata Walk. (= *rufilinearia* Walk., *rufilineata* Hulst) (16 g). Apparently a very rare species or *timandrata*. perhaps a remarkable local form of *limboundata*, with the markings more reddish, formed as in ab. *relevata*, the fringes reddish, the underside darker, terminal dots weaker. Both the types are ♂♂ from Florida.

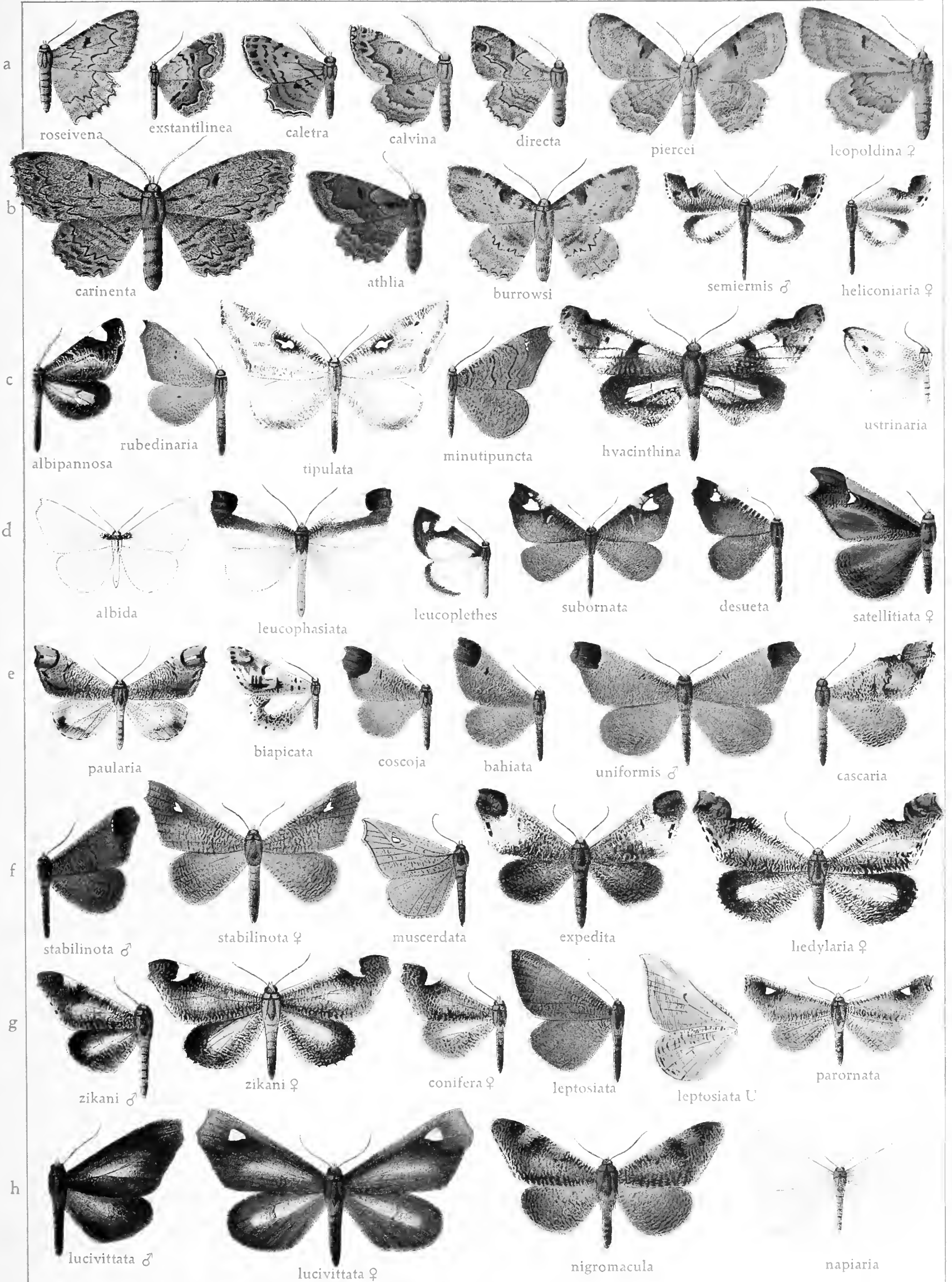
S. dorsinigrata Warr. (16 g). Very distinct in its shape and tone; rather large, the forewing elongate, *dorsinigrata*. the hindwing sharply angled (also with pronounced apex and tornus), the median shade extremely oblique, on the forewing broad; postmedian dots of the forewing rather near the termen. Abdomen with dark spots. Antennal ciliation of ♂ very long; hindtarsus about as long as tibia. S. E. Peru; Santo Domingo, not rare.

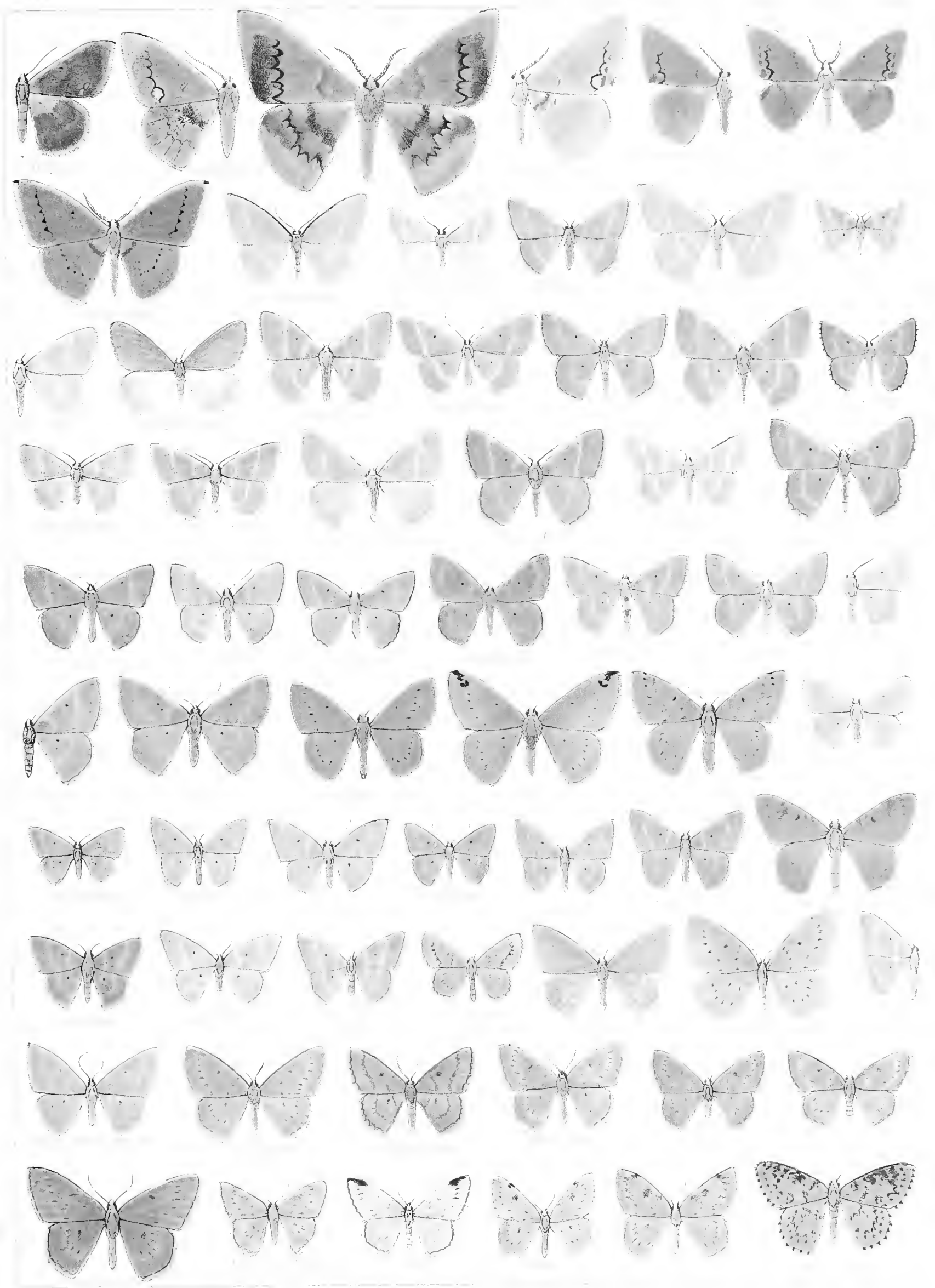
S. donaria Schaus (16 g). Altogether less striking than *dorsinigrata* and considerably smaller; but, with *donaria*. the possible exception of *dehortata* (see below), I know of no South American species with which it could be confused. Darker and relatively longer-winged than *omissa*. Forewing beneath suffused with brown except at hindmargin; postmedian line beneath more distinct than above. Castro, Parana. I only definitely know ♀♀; a possible ♂ is much less dusky, the median shade much thinner, the underside less heavily marked, the hindtibia moderately dilated, with tarsus about $\frac{2}{3}$. S. E. Brazil.

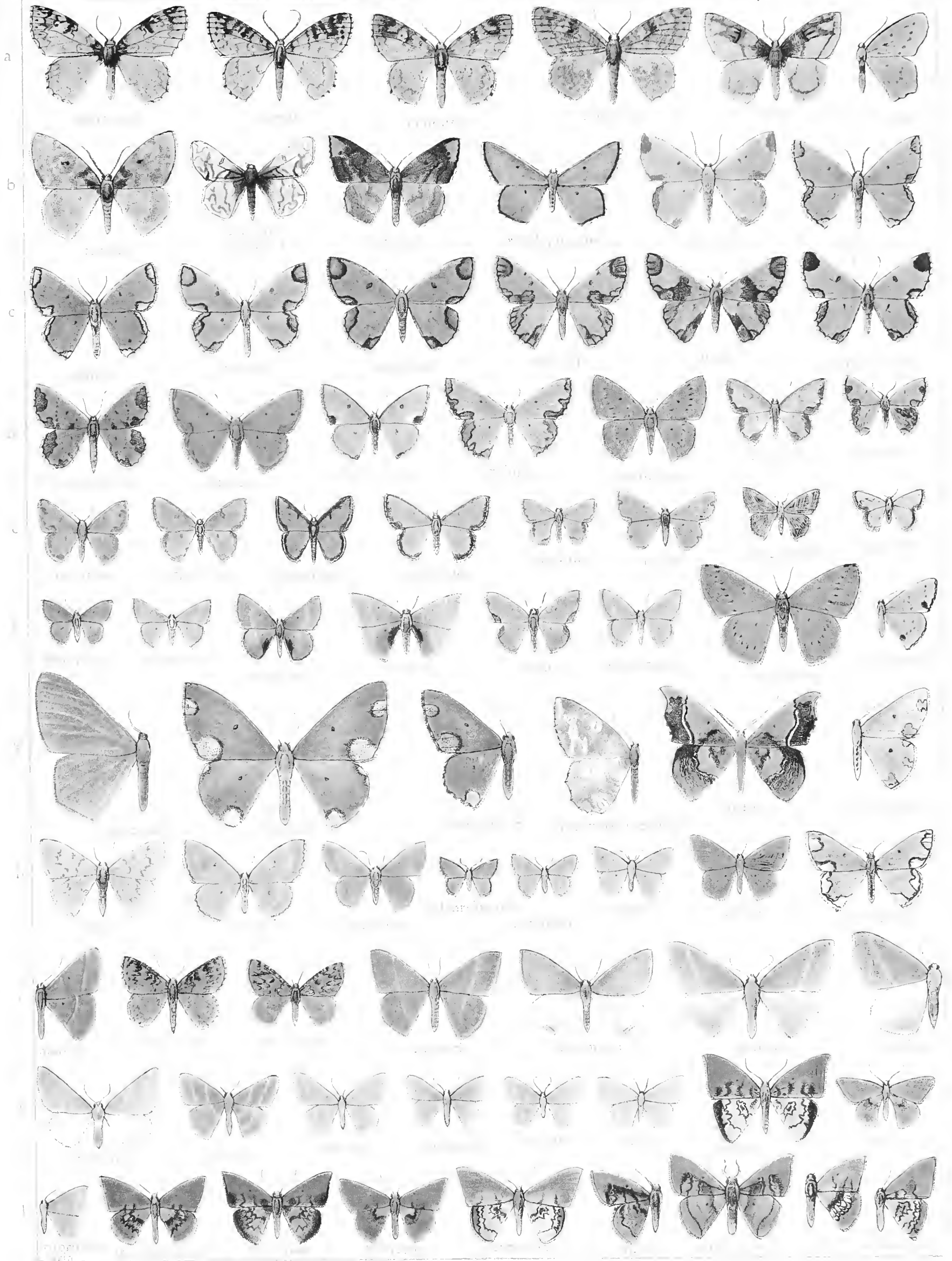
S. dehortata Dogn. has about the size of *donaria* and its author says that it "most resembles our *imitaria* *dehortata*. *Hbn.*" (Vol. 4, pl. 41) and "comes near *recusataria* Walk." (by which I believe was understood *dismutata* or something very similar, scarcely the true *recusataria*). Loja, 3 ♂♂. I noted it as "smaller and much more fleshy-brown than *omissa* Warr., median shade less strong, hindtarsus somewhat longer than tibia". Cell-dot of forewing hardly indicated, of hindwing distinct.

- suffecta*. **S. suffecta** *sp. n.* (16 g). Rather strongly recalls *defixaria* (18 b) in size, coloration and markings. Hindleg of the ♂ quite different, the tarsus nearly 2_3 as long as the tibia. Further distinguishable by the somewhat more curved termen of the forewing and especially the more angled hindwing, also by the black dots on the postmedian line; the terminal dots are on the underside connected by a dark line, at least on the forewing. Rio Pacaya. Rio Ucayali. June—September 1912. 2 ♂♂ and 1 ♀ in the British Museum. A somewhat larger (26 mm) and longer-winged ♂ (abdomen wanting), from Prov. del Sara. Bolivia (J. STEINBACH), either represents a race or a very close ally, transitional towards *dismutata*.
- dismutata*. **S. dismutata** *Guen.* (= *catenularia* *Walk.*) (16 h). I have not seen GUENÉE's type, a ♂ from "Brazil", but the description agrees so perfectly with *catenularia* that I do not doubt the synonymy. Fascicles of ♂ antenna well developed, hindtarsus about 2_3 tibia. Differs from *napariata* in the latter character, its more angled hindwing and weaker markings (especially beneath). Brazil. Generally much larger than *suffecta*, forewing with the termen and especially the median line more oblique, hindwing with rather sharper angle.
- nostima*. **S. nostima** *sp. n.* (16 h). Similar to the most brown-tinged examples of *dismutata*, hindwing with the angle scarcely as strong, though a little stronger than in *suffecta*; hindtarsus almost as short as in *napariata*. Cell-dots sharp, that of the hindwing slightly enlarged; markings above and beneath otherwise closely as in typical *napariata* or with the antemedian and median lines of the forewing slightly more oblique still. Colombia. El Congo. Cauca Valley, type ♂ in my collection, paratype in that of the British Museum. The shape, colour and markings differentiate it sharply from *n. acrates* (16 h).
- napariata*. **S. napariata** *Guen.* (16 h). Variable in colour and in the strength of the markings and even in the exact development of the angle at the 3rd radial of the hindwing, though this is never acute; generally somewhat suggestive of the least white forms of *nigropunctata* *Hufn.* (Vol. 4, pl. 4 k). Hindtibia of the ♂ strongly dilated, thickened distally, tarsus very short. S. E. Brazil and Paraguay, the type probably from the Rio district. —
- acrates*. **acrates** *subsp. nov.* (16 h) presents a different aspect, perhaps sufficient to indicate a separate species. Paler than the type and even when compared with the whitest Brazilian forms distinguishable by having the postmedian line somewhat farther from the termen; median shade rather weak, never much thickened, on the forewing about parallel with postmedian (in *n. napariata* generally a little more oblique), on the hindwing generally arising well proximal to the end of that of the forewing, not (as in most *n. napariata*) a continuation of the latter; subterminals rather weak; underside weakly marked, the hindwing without the subterminal line which is frequently conspicuous in the type form. Colombia to Bolivia, the type ♂ in the Tring Museum, from La Union, Rio Huacamayo, Carabaya.
- paetula*. **S. paetula** *Prout* (16 h). Coloration and aspect of *napariata* or slightly warmer in tone. Antenna and hindtarsus of the ♂ more as in *dismutata*. Forewing with termen oblique, as long as hindmargin; cell-dot variable in strength, placed on the posterior extremity of the 3rd discocellular; postmedian at its costal extremity somewhat thickened but indefinite, more displaced basewards than in *napariata*. Underside nearly as in that species, the forewing rather more suffused. Sierra del Libane, Magdalena, Colombia, at 6000 feet.
- alargata*. **S. alargata** *Dogn.* Somewhat narrower winged than *dehortata*, apex of forewing more acuminate; much greyer and duskier, hindwing less angled, median line heavy. Loja, only ♀♀ known. The only specimen before me is a poor ♀ from Zamora.
- falcataria*. **S. falcataria** *Warr.* (16 h), founded on a single ♀ from Carobas, Peru, 2500 feet, is also in bad condition and may well be a form of *alargata*. Face apparently less black; wings slightly less yellowish tinged, the median shade perhaps thicker, this and the postmedian line on the forewing sinuate inward between the radials, whereas in *alargata* all the lines of the forewing are pretty straight.
- omissa*. **S. omissa** *Warr.* (16 i)). Greyer than *dismutata*, more as in the European *nigropunctata* *Hufn.* (Vol. 4, pl. 4 k). median shade as thick as in that; apex of forewing rather more acute than in *dismutata*, hindwing less quadrate, less sharply angled at the 3rd radial, postmedian of forewing less bent near the costa, forewing beneath more infuscated, etc. Founded on a ♂ in the United States Museum from "Bolivia", probably (like the ♂ here figured) collected by GARLEPP, Rio Songo to Rio Suapi; occurs also at Oconeque, S. E. Peru. The ♂ hindtarsus is nearly as in *dismutata*, the tibia thicker. The ♀ has the median shade heavier.
- quinquelinearia*. **S. quinquelinearia** *Pack.* (= *quinquelineata* *Pack.*) (16 i). A common North American species from the Rocky Mountains westward, first described from California. Expanse about the same as in *limboundata* (16 g), but apart from several other obvious differences it has a scarcely shortened ♂ hindtarsus and usually much suffused forewing beneath, at least in the ♂♂. The variation is chiefly in the strength of the lines, some of which are frequently very weak; blotched aberrations are unknown. — ab. **impunctata** *Warr.*, described as a species, or at least "the Colorado form", only differs in the loss of the cell-dots, which, however, are generally very

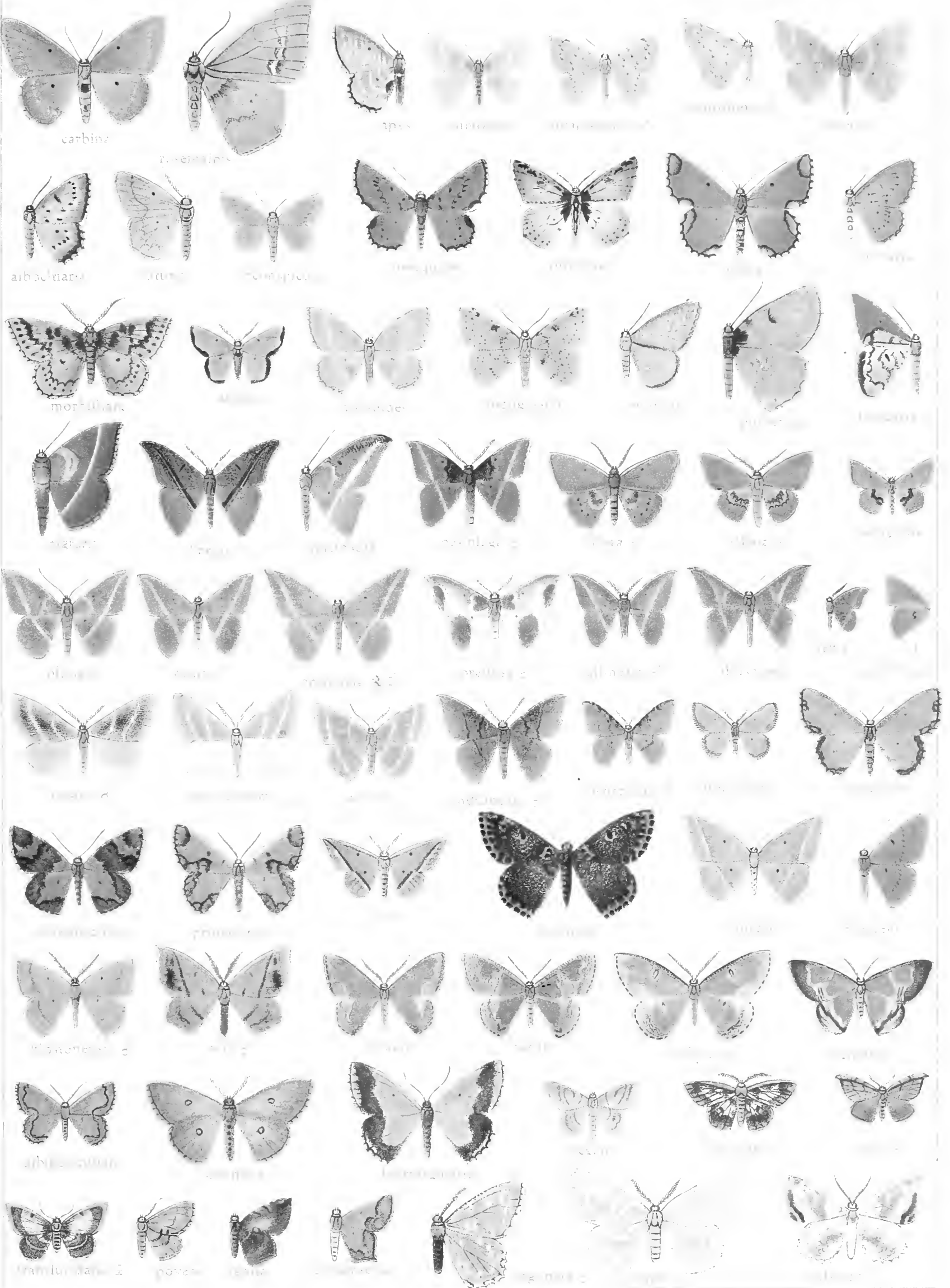


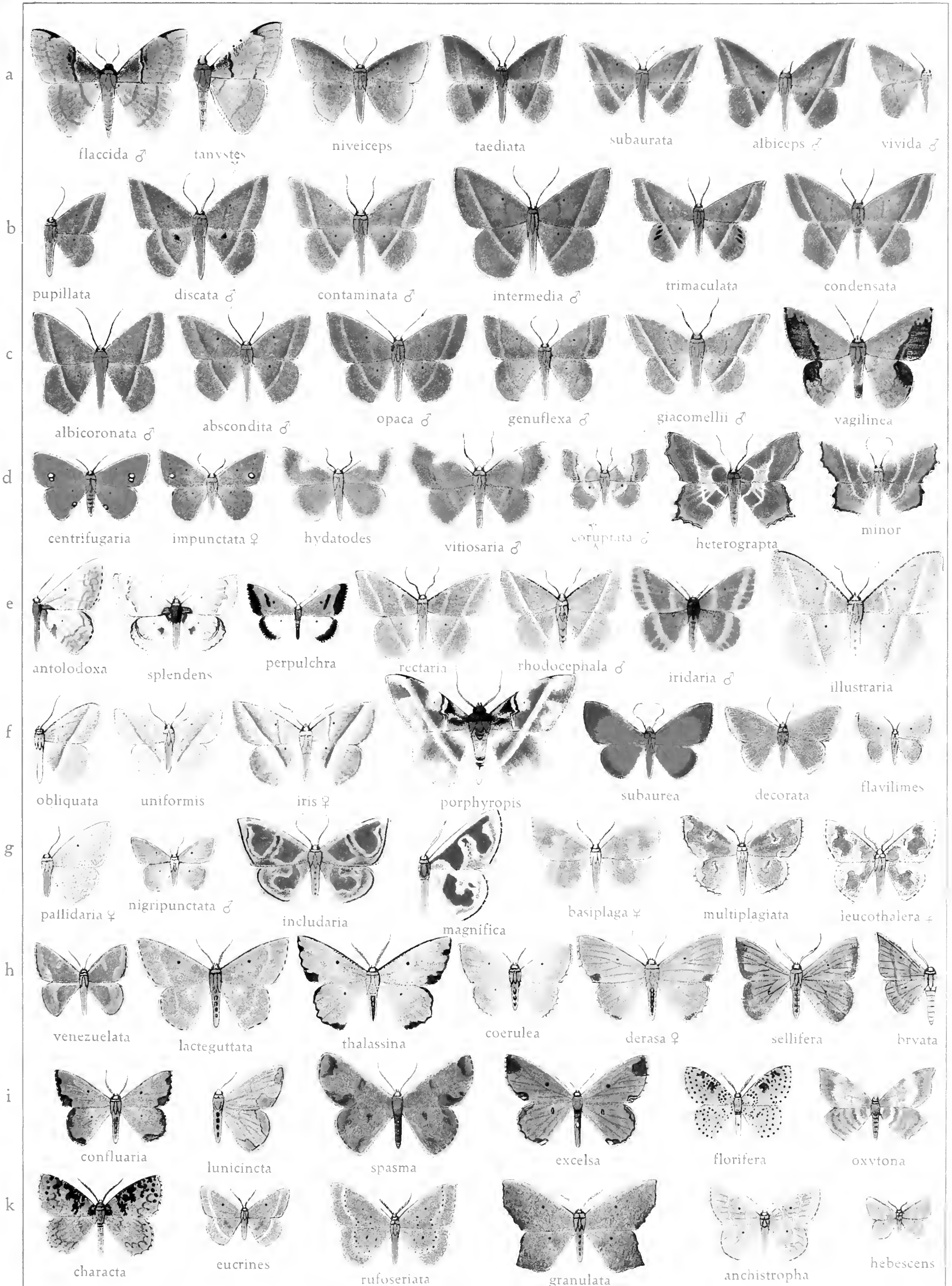




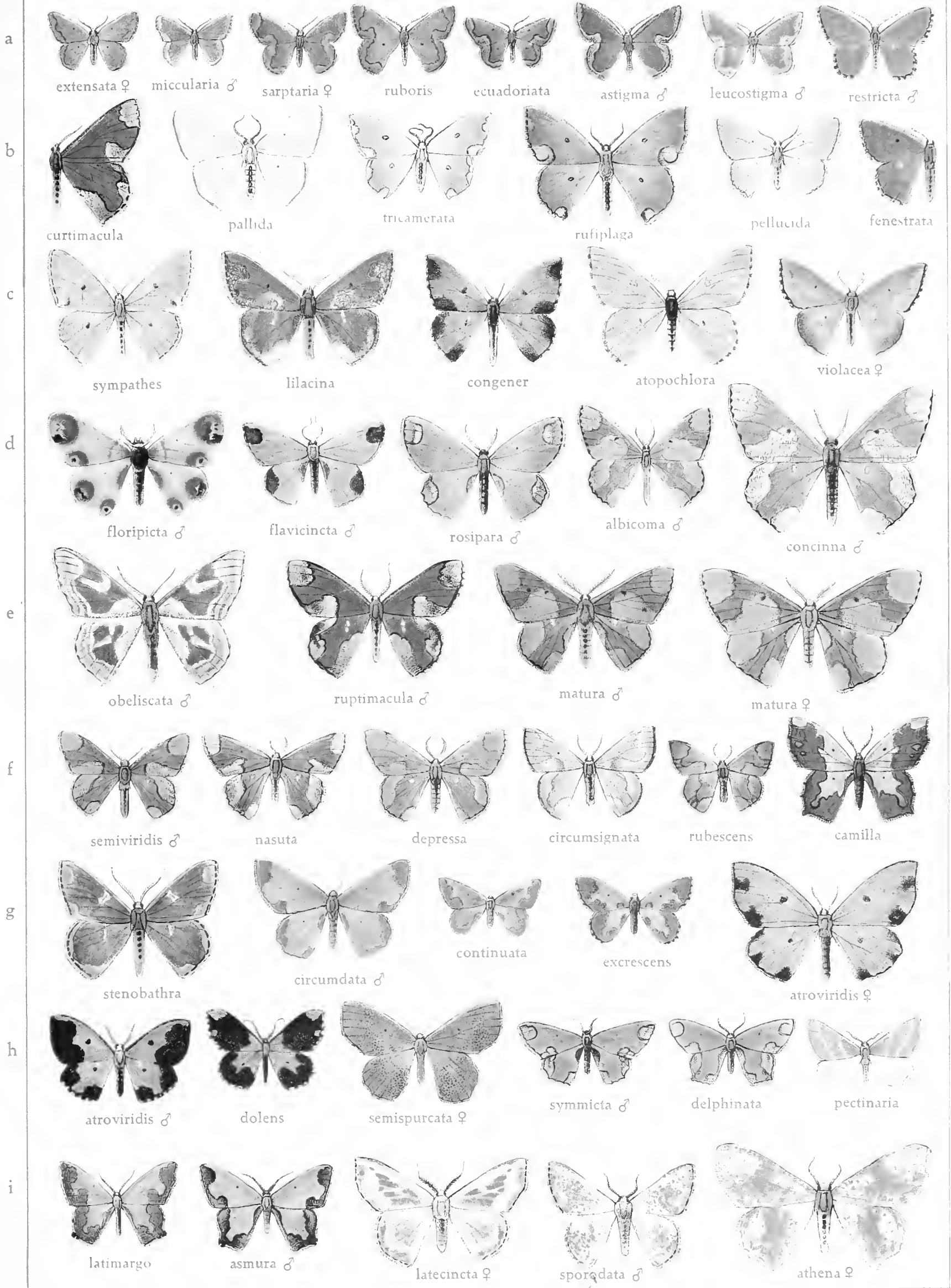


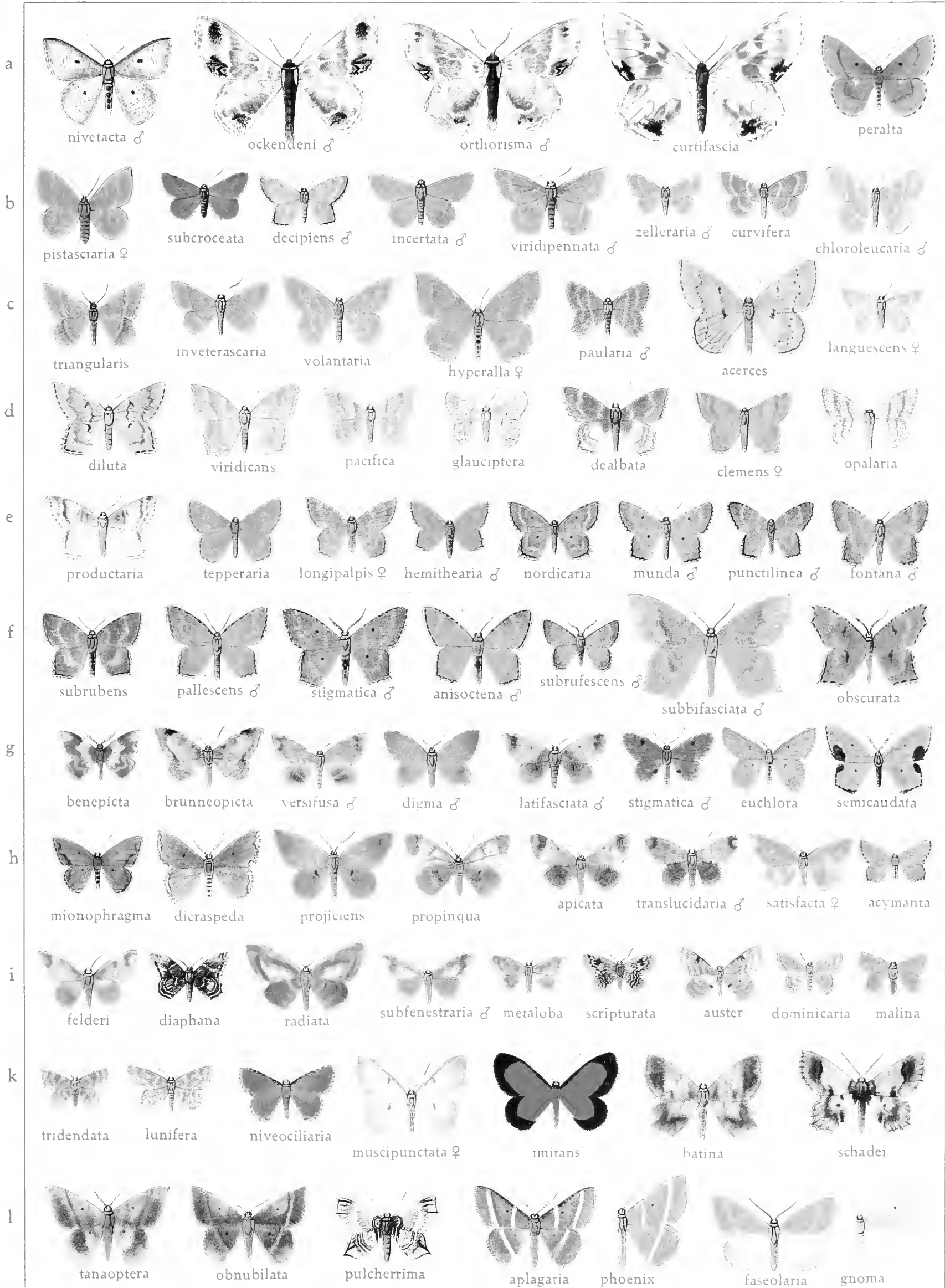




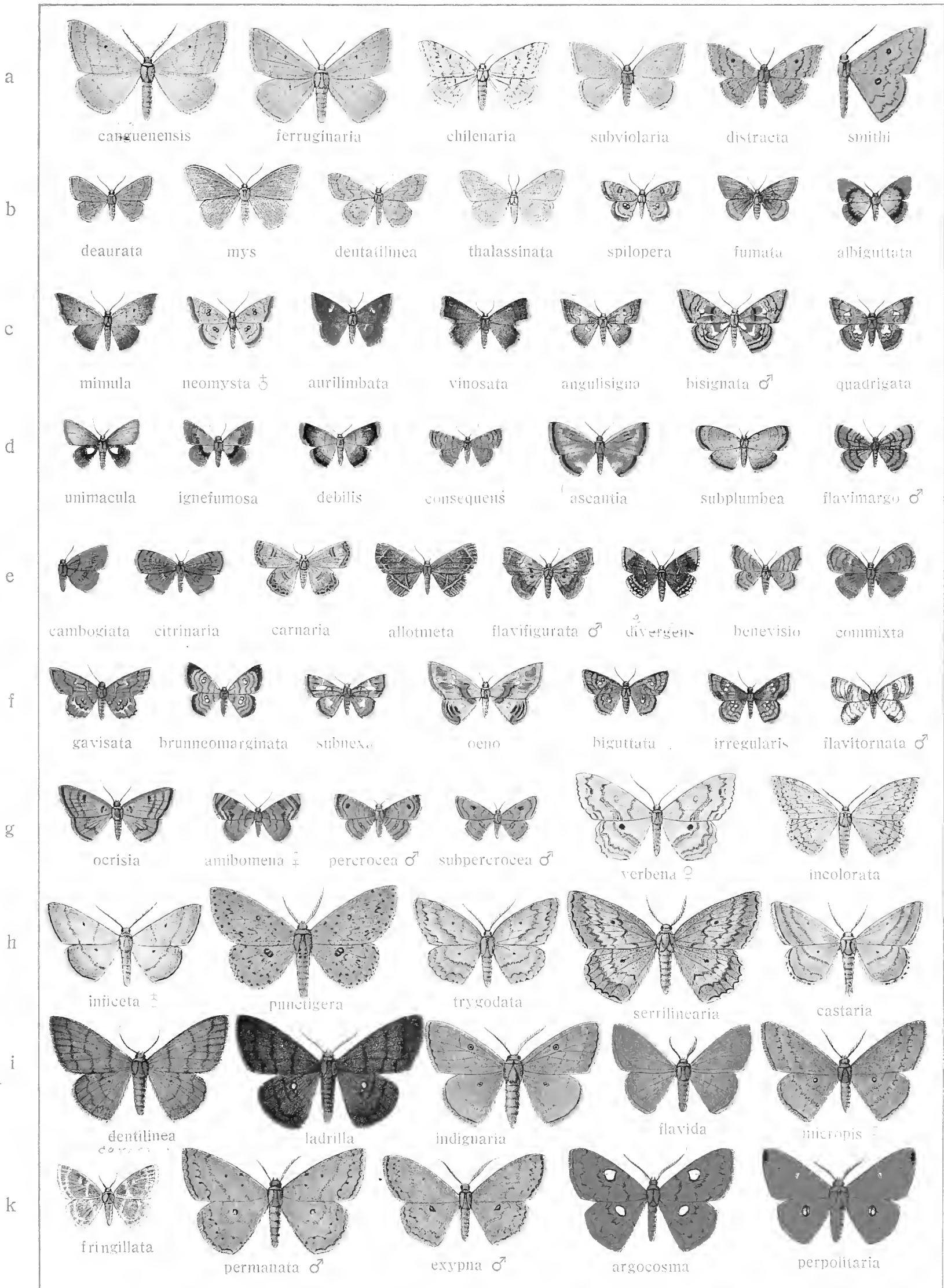


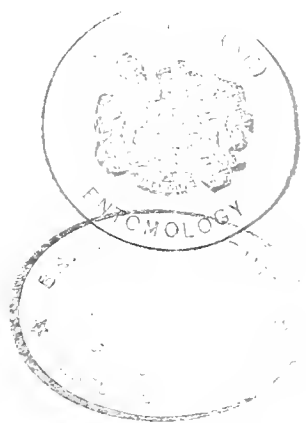


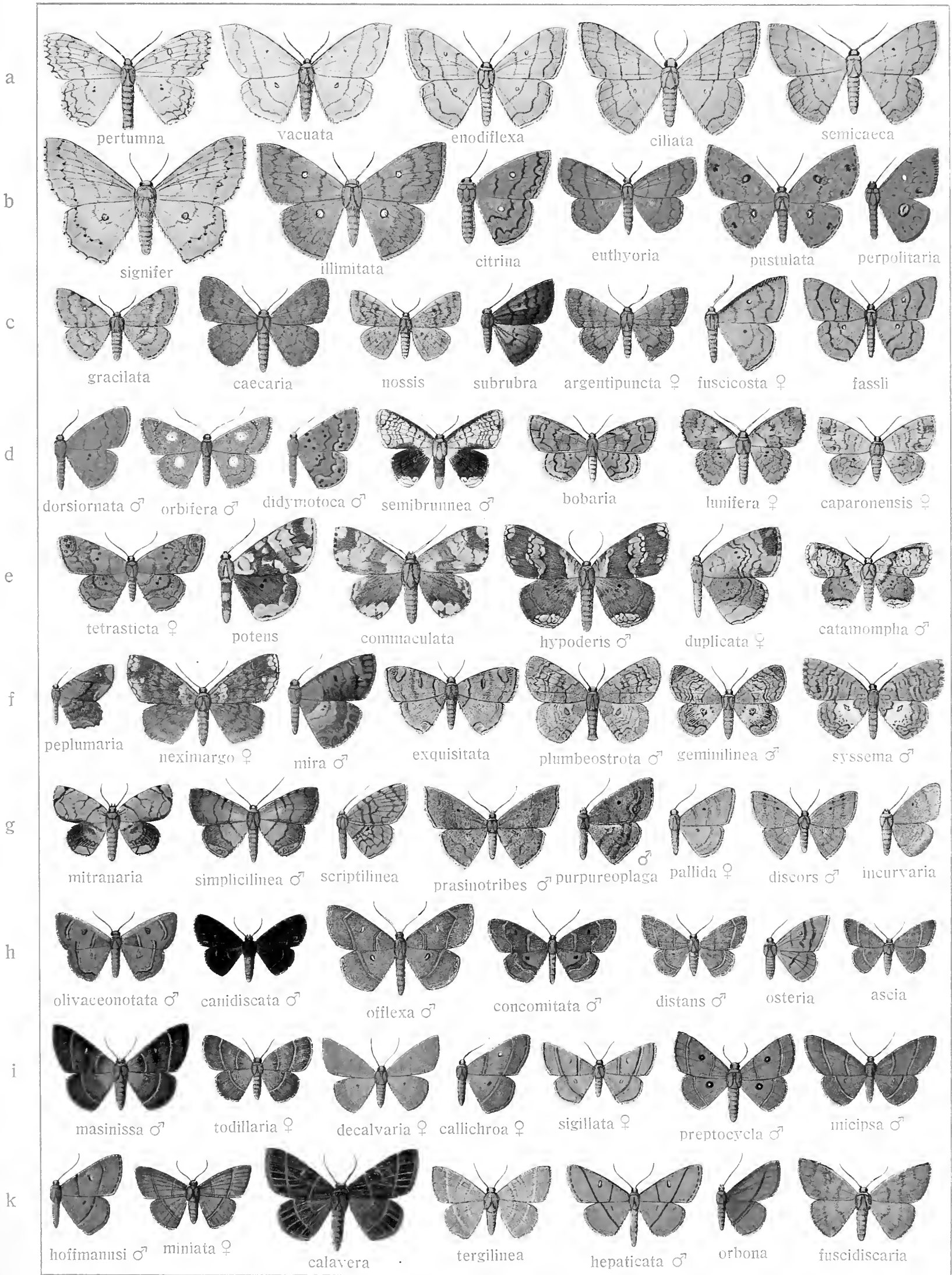














SEMAEOPUS-CALOTHYSANIS.

VIII.

11.

